

The
MILCOR
▪ MANUAL ▪

BETTER PLASTERING
ON METAL LATH

MILCOR
▪ FIREPROOF ▪
BUILDING PRODUCTS
MILWAUKEE CORRUGATING
COMPANY
MILWAUKEE, WISCONSIN

The More You Mention
THE ARCHITECTS SAMPLES CORPORATION
The More Manufacturers File Samples, and
The More Complete Our Service to You

The *MILCOR* MANUAL

A Data Book

on Milcor Materials and Methods, including
Engineering Tables on Reinforced Concrete Construction,
Details, Specifications and General Information Regarding
Milcor Stay-Rib and Netmesh Expanded Metal
Lath, Expansion Corner Bead and Casings,
Interior Metal Trim, Steel Domes, Channels
and Other Firesafe Building Products

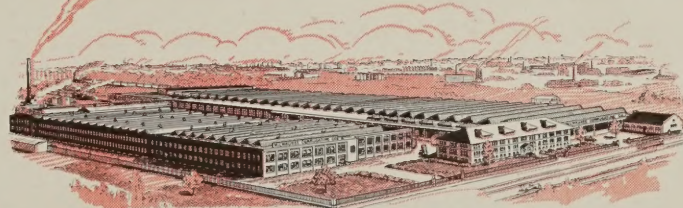
Approved Architects' Specifications, Pages 87 to 95
Index on Last Page

Catalog No. 20-E

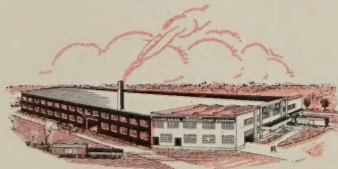
MILWAUKEE CORRUGATING COMPANY

LOUIS KUEHN, President & Treasurer

A. J. LUEDKE, Secy. & Asst. Treas.



MILWAUKEE



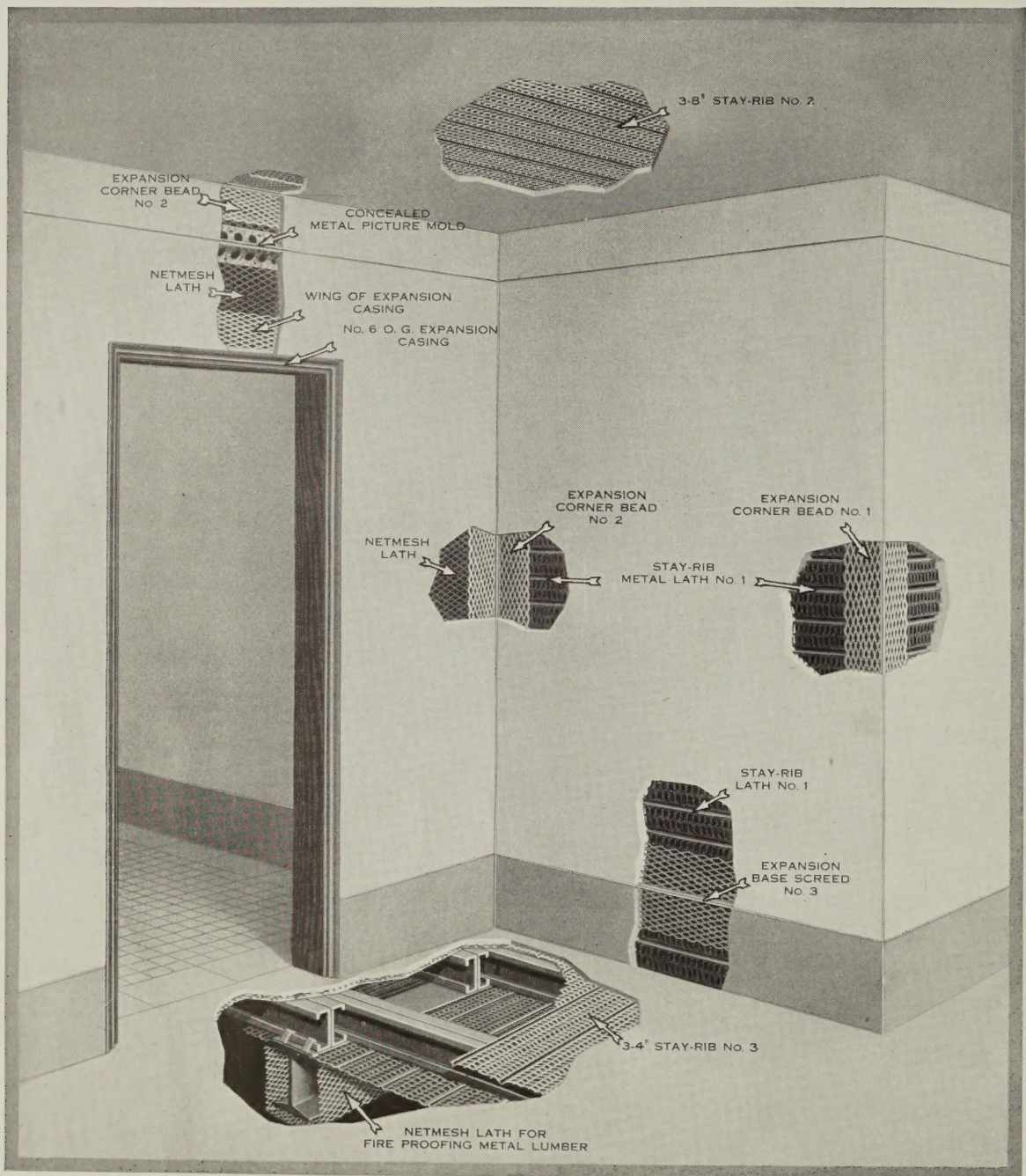
KANSAS CITY



CHICAGO



LA CROSSE



Firesafe, Crackfree and Permanently Beautiful

PLASTERING is one of the most important factors in the construction of any building, whether it be a modest dwelling or a towering skyscraper. Milcor metal lath and allied products insure firesafeness, freedom from zebra-like dust streaks which develop with wood lath, elimination of cracking which is inevitable with wood lath, plaster boards and similar types of plastering base, precisely straight corners reinforced for permanence, and neater, more sanitary, more beautiful interiors.

If you haven't a copy of our charming book on "Modern Modes in Better Plastering" be sure to send for one.

MILCOR

MATERIALS *and* METHODS for FIRESAFE CONSTRUCTION

Broadening the Architectural Scope

Frequently you will have occasion to consult this Manual for the Data it contains: *Detailed Descriptions* of the Milcor line of Firesafe Metal Building Products—*Standard Specifications* for Firesafe Structures, in convenient form for embodiment in Architectural Specifications—*Engineering Tabulations* on Milcor Steel Dome Construction, modern bar joist construction and other practical information.

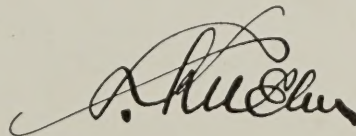
MUCH credit is due the architectural profession for fostering standards which combine firesafeness and sanitation with artistic effects and maximum endurance for all types of structures. Efforts to meet these high standards in the most practical manner, have resulted in important inventions — new adaptations of metal in Milcor Building Products.

And with these products new methods, which reduce construction costs, have been made possible — buildings of all types can be made firesafe without prohibitive increase in price — structures more sturdy though lighter — dwellings safer, more sanitary, enduring and beautiful!

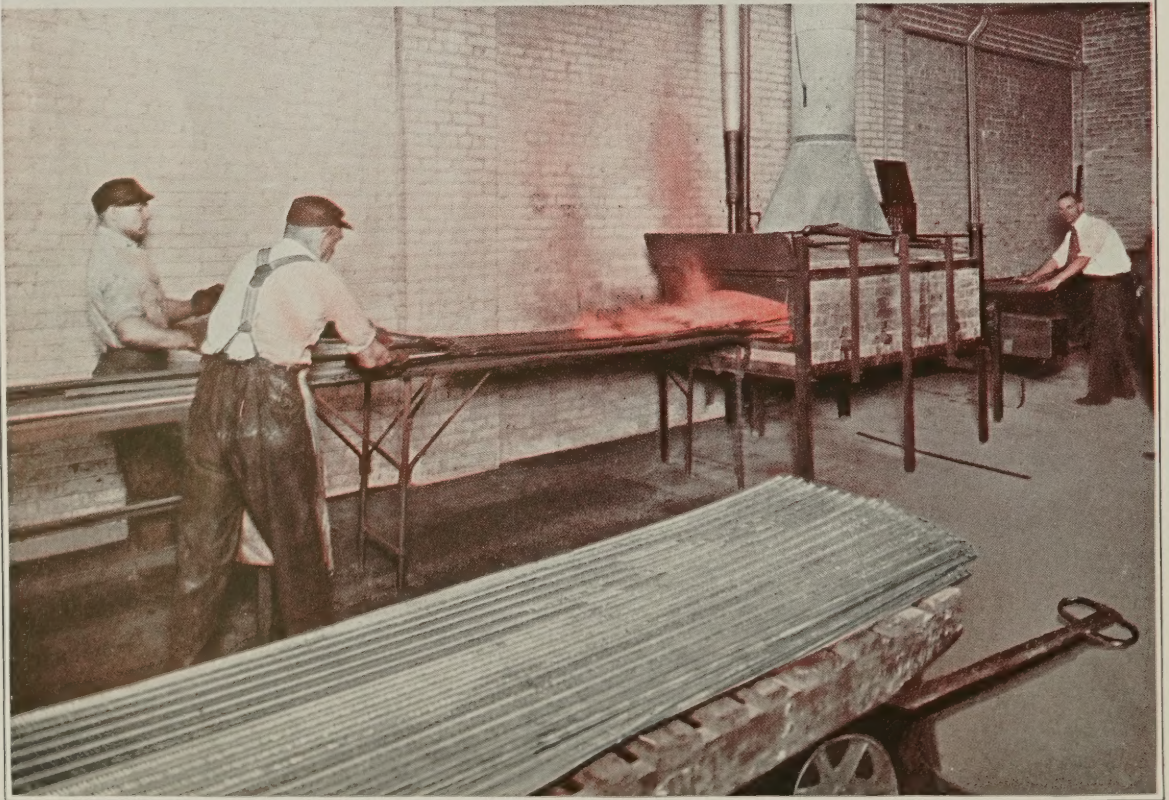
Architects have recognized in these Milcor Products the ideal means to the attainment of their standards. They are specifying these products to obtain effects and results not possible with any other type of materials.

Backed by years of experience in the development and production of modern, firesafe building materials, the Milwaukee Corrugating Company, with its extensive facilities, offers positive assurance of uniform high quality and unequalled service in this extraordinary line of products.

More than merely meeting the requirements, the Milcor Line actually has broadened the creative scope of American Architecture.

 *President,*

Milwaukee Corrugating Company



All Milcor painted metal lath passes through these furnaces after it is cut and expanded. This heat-treating process removes all oils and impurities, re-anneals the metal, gives the lath longer life and greater strength, adds immensely to the protective value of the paint and insures maximum resistance to corrosion.

MILCOR Expanded Metal Lath

NO longer can any logical reason be offered for not building every structure firesafe. Considering the reasonable initial cost of Milcor Metal Lath and the saving in labor made possible by the convenience and increased speed in erection, expense is no longer an element unfavorable to this modern type of construction.

Economical and effective is this metal lath method—effective even with wood frame construction. And it is firesafe! Impressive proof of this is indicated by the fact that expanded metal lath on wood-joint ceilings and wood-stud walls, gypsum plastered, have been given a full “One-hour Rating” by the Underwriters’ Laboratories, after exhaustive tests.

Milcor-lathed walls and floors can be relied upon to confine even a severe fire, for at least an hour, to the room in which the blaze originates, without danger of spreading to other parts of the structure. Such a barrier to flames is effective—it permits plenty of time to get fire-fighting facilities to the scene.

The first fifteen minutes, in ordinary buildings, are the most critical for the average conflagration. But Milcor-lathed walls are firesafe for at least four times as long as that—real fire retardants for at least one hour!

In addition to the fire protection furnished, Milcor metal-lathed walls and ceilings will *remain free* from cracks. Wooden lath, swelling and warping when the wet plaster is applied—shrinking again as the plaster dries out—creates strains which are certain to show up in cracks and loosened plaster. There are no

such strains in metal lath construction—the network of Milcor Lath closely knits and firmly binds the entire surface and makes cracking extremely improbable. Nor are Milcor-lathed walls or ceilings subject to “striping”—that barlike blemish which usually is unavoidable on wooden-lath-plastered walls.

In sound-proof qualities, Milcor metal-lathed solid plastered two-inch partitions are superior to other types of wall construction—even more sound-proof than some hollow-wall construction.

Acoustical characteristics of Milcor-lathed walls are excellent. Sound-proof and free from internal vibrations, there is practically no “sound board” effect, no clashing echoes or reflecting sounds. The superiority of this construction for auditoriums is an established fact. For instance, in the Auditorium of the College of Industrial Arts, Denton, Texas, where Milcor Metal Lath was used, the acoustical properties are said to be equal to those of the famous Mormon Temple, at Salt Lake City.

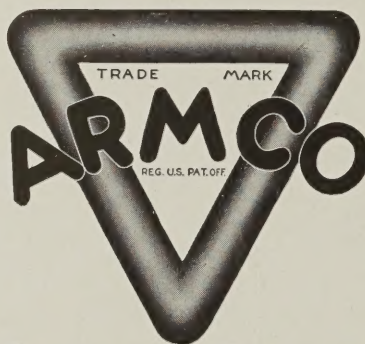
All painted MILCOR Lath is heat-treated and reannealed *after forming*. This heat-treating process is important. The electrons, or steel molecules, become displaced through the strain of cutting and expanding the steel sheets. Heat-treating relieves the stress and brings the electrons back to their original positions. This process results in greater toughness and longer life of the metal. Our Milcor Special Elastic Paint adds further protection.

This super-care in manufacture and our exceptionally fine facilities give Milcor “Stay-Rib” and “Netmesh” Expanded Metal Lath their consistently high quality.

Milcor "Netmesh" Metal Lath,
"Stay-Rib" Metal Lath No. 1,
 $\frac{3}{8}$ " Stay-Rib Metal Lath No. 2 and
 $\frac{3}{4}$ " Stay-Rib No. 3
are now made in the famous rust-resisting



Every bundle of genuine Milcor Stay-Rib Metal Lath made from ARMCO Ingot Iron is labeled with this distinctive triangular metal tag.



Ingot Iron



Look for this distinctive triangular metal tag on every bundle, to identify genuine Milcor Netmesh Metal Lath made from ARMCO Ingot Iron.

THE superior rust-resisting qualities of ARMCO Ingot Iron have been proven beyond any question of doubt. It is the purest iron made. The advantages possessed by Milcor Stay-Rib and Netmesh Metal Lath, combined with the permanence of ARMCO Ingot Iron, result in the most practical base for plastering.

Milcor Stay-Rib No. 1 and $\frac{3}{8}$ " Stay-Rib No. 2 are furnished in ARMCO Ingot Iron, painted black, or in Galvanized ARMCO Ingot Iron, in standard weights: Painted, 3.40 lbs. and 4.00 lbs. per square yard; Galvanized, 4.00 lbs. per square yard; $\frac{3}{4}$ " Stay-Rib Lath No. 3, Painted,

No. 26 Gauge, 0.56 lbs. per square foot; Painted, No. 24 Gauge 0.74 lbs. per square foot; Galvanized No. 28 Gauge, 0.53 lbs. per square foot.

Milcor Netmesh (Diamond Expanded) Metal Lath is furnished in ARMCO Ingot Iron, painted black, or in Galvanized ARMCO Ingot Iron, in standard weights of 2.50 lbs. and 3.40 lbs. per square yard.

Architects, Engineers, and Contractors who appreciate the unequalled value of Milcor Stay-Rib and Netmesh Metal Lath will welcome the opportunity to specify and secure genuine ARMCO Ingot Iron in these products.

All Milcor Metal Lath made also in

**COPPERED
METAL**

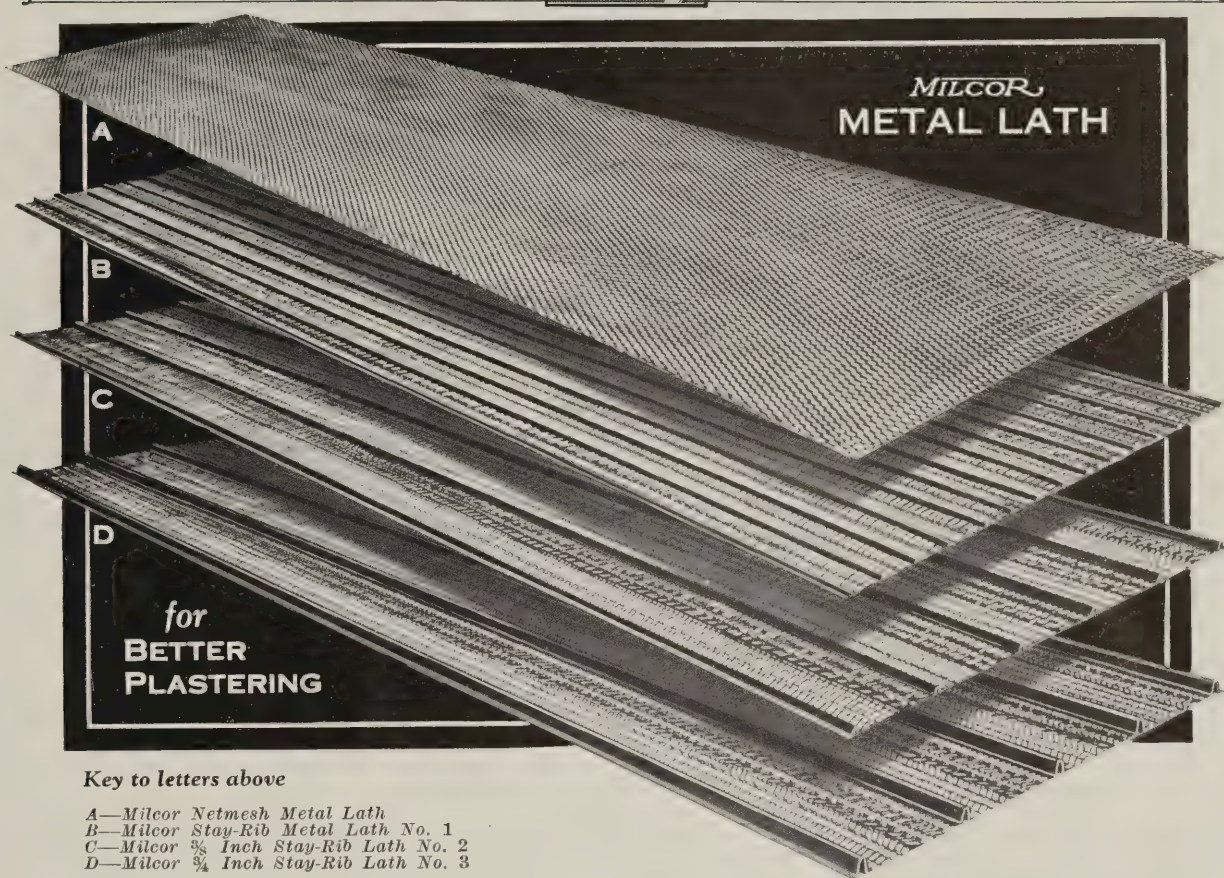
The peculiar ability of copper-bearing steel to resist corrosion is well known. Milcor "Coppered Metal" is of standard quality, carefully controlled for uniformity in production. All Milcor metal lath is now available in "Coppered Metal", galvanized or painted. All Milcor painted lath is now painted black. The grade of metal is plainly identified by tags on each bundle.

**SHEET
STEEL**

Only the highest grade of carefully inspected prime Sheet Steel is used in the production of Milcor steel lath. The best galvanizing with new, pure zinc spelter insures highest quality in Milcor galvanized steel lath. The heat-treating and a special grade of black asphaltum paint insures maximum protection of the painted grades.

**ANACONDA
PURE COPPER**

Under extreme conditions, where destructive acid fumes or other abnormal atmospheric attack is apt to exist, pure Anaconda copper is frequently used for Milcor metal lath. This copper has great tensile strength and stiffness in addition to its value as positive resistance to corrosion. Netmesh Lath is also available made from pure zinc.



Key to letters above

- A—Milcor Netmesh Metal Lath
 B—Milcor Stay-Rib Metal Lath No. 1
 C—Milcor $\frac{3}{8}$ Inch Stay-Rib Lath No. 2
 D—Milcor $\frac{3}{4}$ Inch Stay-Rib Lath No. 3

There's a Type of MILCOR Metal Lath for Every Firesafe Construction Requirement

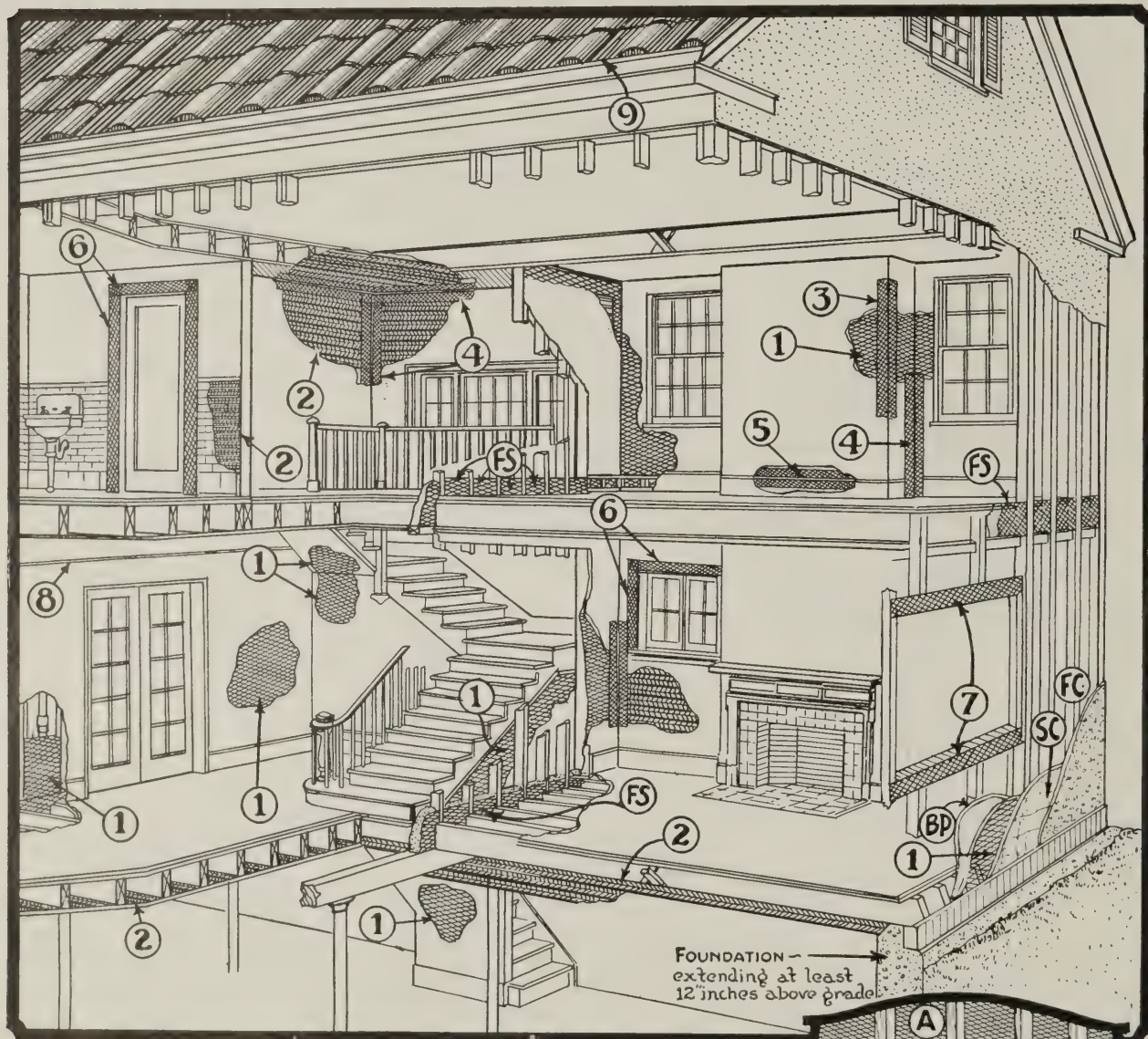
THESE four types of Milcor Metal Lath are recognized as ideal for all types of construction involving the use of metal lath.

Large stocks are carried at all four Milcor plants, to insure SAME DAY shipments . . . a Milcor policy of 25 years' standing.

Condensed Specifications—All Types MILCOR Metal Lath

	WEIGHTS IN POUNDS PER SQUARE YARD—(Packed 9 Sheets to a Bundle)						
	STEEL Painted Black	"Coppered Metal" Painted Black	ARMCO Ingot Iron Painted Black	Galvanized STEEL	Galvanized ARMCO Ingot Iron	Pure ZINC	ANACONDA Pure Copper
METMESH Diamond-Exp'ded Metal Lath in Sheets 24" x 96" See pages 10 to 13	2.20 2.50 3.00 3.40	2.20 2.50 3.00 3.40	2.50 3.40	2.50 3.40	2.50 3.40	3.03	3.31
STAY-RIB No. 1 Metal Lath in Sheets 24" x 96" See pages 28 and 29	2.75 3.00 3.40 4.00	2.75 3.00 3.40 4.00	3.40 4.00	3.60	4.00		
$\frac{3}{8}$ -inch STAY-RIB No. 2 Metal Lath in Sheets 24" x 96" See pages 30	2.75 3.00 3.40 4.00	2.75 3.00 3.40 4.00	3.40 4.00	3.60	4.00		
$\frac{3}{4}$ -inch STAY-RIB No. 3 Reinforcing Lath in Sheets 24" wide (covering width) Standard Lengths: 4, 5, 6, 7, 8, 9, 10, 11, or 12 feet. See pages 32 to 45	WEIGHTS IN POUNDS PER SQUARE FOOT						
	STEEL Painted Black	"Coppered Metal" Painted Black	ARMCO Ingot Iron Painted Black	Galvanized STEEL	Galvanized ARMCO Ingot Iron	CROSS SECTIONAL AREAS	
No. 28 Gauge	0.46	0.46		0.53	0.53	0.1235 Square inch per foot width	
No. 26 Gauge	0.56	0.56	0.56			0.1482 Square inch per foot width	
No. 24 Gauge	0.74	0.74	0.74			0.1977 Square inch per foot width	

All Milcor painted lath is heat treated and re-annealed after being cut and expanded, which gives the metal longer life and greater strength.

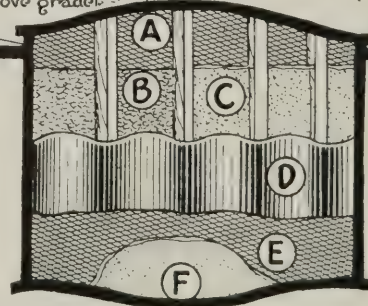


Back-Plastered Stucco and Fire-Safe Construction on Metal Lath

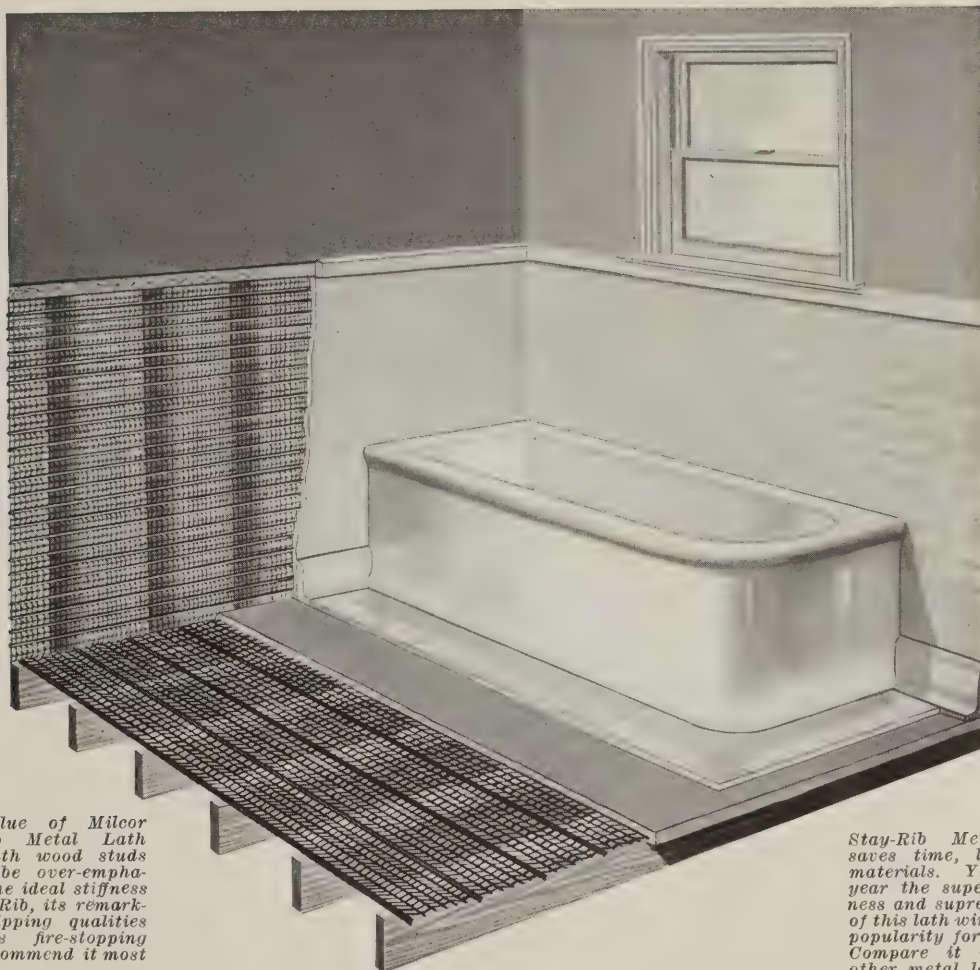
Code to above: 1=Netmesh Lath—
2=Stay-Rib Lath No. 1—3=Ex-
pansion Outside Corner Bead—4=
Expansion Inside Corner Bead—5=
Expansion Base Screed—6=Expan-
sion Window and Door Casings—
7=Expansion Flashing—8=Con-
cealed Metal Picture Molding—9=
Milcor Spanish Metal Tile—Other

Artistic Styles of Milcor Metal
Roofs also Available.
SC=Scratch Coat Stucco—FC=Fin-
ish Coat Stucco—BP=Back-Plaster-
ing—FS=Firestops.

Code to Side Illustration to Right:
A=Netmesh 3.4 for Exterior Stucco
—B=Stucco Keyed through Net-
mesh—C=Back-plastering from In-



side—D=Building Paper or Other
Insulation—E=Netmesh 2.50 for
Inside Walls—F=Inside Plastered
Wall over Netmesh.



The value of Milcor Stay-Rib Metal Lath used with wood studs cannot be over-emphasized. The ideal stiffness of Stay-Rib, its remarkable gripping qualities and its fire-stopping ability commend it most highly.

Stay-Rib Metal Lath saves time, labor and materials. Year after year the superior stiffness and supreme safety of this lath wins broader popularity for Stay-Rib. Compare it with any other metal lath!

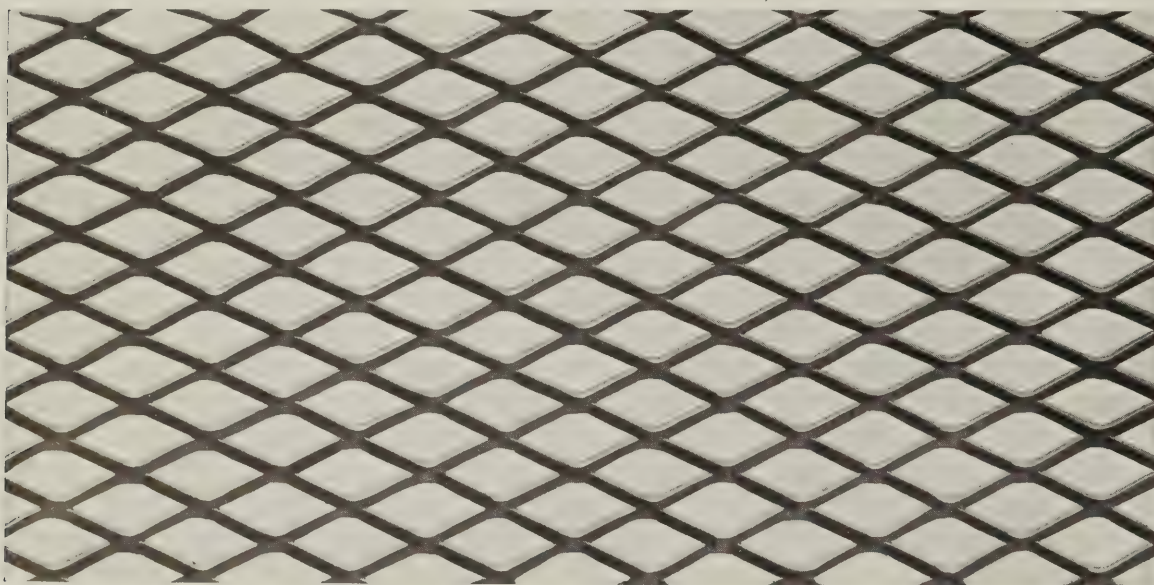
Efficient Under Severe Conditions

CLASSIFICATION of Buildings according to the character of their occupancy, emphasizes the importance of specifying Milcor Metal Lath, Expansion Corner Bead, Steel Domes and other Milcor Firesafe Materials and Methods. All buildings within the following classifications, should use Milcor Products as the most efficient and practical means toward permanence and safety from fire and cracks:

- Class 1. Private Dwellings and Duplex Houses.
- Class 2. Apartment Buildings; Multiple Dwellings; Tenement Houses.
- Class 3. Office and Public Buildings; Libraries; Museums; Court Buildings; Police Stations.
- Class 4. Institutions; Hotels; Asylums; Hospitals; Club Houses.

- Class 5. Buildings used for sale and storage of merchandise, with and without contiguous living quarters. Restaurants.
- Class 6. Factory Buildings; Lofts; Stables.
- Class 7. Schools; Colleges.
- Class 8. Theatres; Dance Halls; Public Halls; Lodge Buildings; Churches.
- Class 9. Private, Attached and Public Garages; Dry Cleaning Establishments; Buildings of especially hazardous occupancies.

In bathrooms, laundries, kitchens and other rooms where clouds of steam are frequent or much moisture is prevalent, Milcor Metal Lath and Expansion Corner Bead is essential for safety against cracking or bulging of plaster. As a ground for the concrete and terrazo or tile floors of bathrooms, Milcor $\frac{3}{8}$ " Stay-Rib Metal Lath No. 2 or $\frac{3}{4}$ " Stay Rib No. 3 are highly efficient.



MILCOR Netmesh Diamond Expanded Metal Lath

THE expanded diamond texture of Milcor Netmesh Lath is produced with special machines and equipment designed and built by our own engineers. A comparatively small amount of plaster is required to produce a perfect key on Milcor Netmesh. This feature makes plastering easy, speeds up the work and results in economies.

There is a type of Milcor Netmesh for every requirement.

The rare adaptability of this excellent metal lath for ornamental plastering is outlined on page 26 and its practical value in making steel girders and columns firesafe is described on page 27.

Furnished as follows:

Cut from Open-Hearth Steel Sheets, Painted Black:

Heat treated and reannealed after being cut and expanded, giving the metal longer life and greater strength. Our Milcor Spe-

cial Elastic Paint adds further protection.

Cut from ARMCO Ingot Black Sheets Painted Black. ARMCO Ingot Iron is the purest iron made and is highly rust-resisting. Furnished in 2.50 lb. and 3.40 lb. only.

Cut from ARMCO Ingot Iron, tight-coat galvanized sheets, in 2.50 and 3.40.

Cut from Tight Coat Galvanized Steel Sheets.

Cut from Coppered Metal, a rust-resisting, copper-bearing metal, Painted Black.

Cut from Pure Zinc Sheets, for use where unusual conditions of moisture or other corrosive action are to be guarded against. Galvanized nails or staples must be used with Zinc lath to avoid electrolytic corrosion.

Cut from Pure Cold Rolled Copper Sheets for use under conditions similar to those referred to under Zinc Lath. Copper nails or staples must be used with

Each bundle of Milcor Netmesh Diamond Expanded Metal Lath is labeled with a metal tag as indicating the weight per square yard, and type.



copper lath to avoid electrolytic corrosion.

Zinc or Copper Netmesh is used extensively for construction work at *seaside locations* where the peculiar corrosive action of salt-laden air has heretofore presented

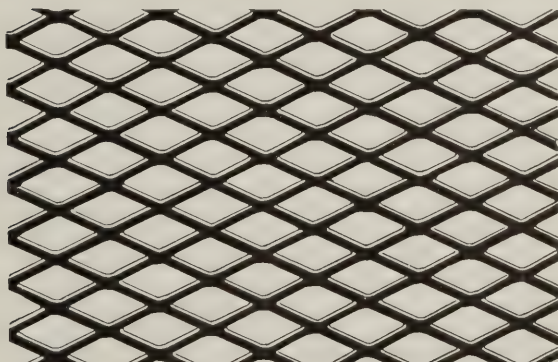
a baffling element with which to contend.

Various adaptations of Milcor Netmesh Lath are illustrated and described on pages 8, 13, 15 to 27, and Standard Specifications are outlined on pages 87 to 95.

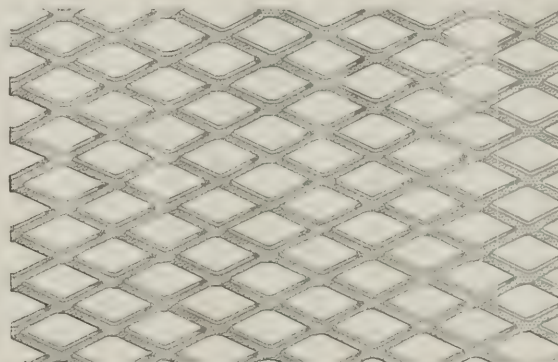
Netmesh Diamond Expanded Lath $\frac{3}{8}$ " Mesh

TYPE	Weight per Square Yard Pounds	Size of Sheets Inches	Number of Sheets in Bundle	Square Yards In Bundle	Weight per Bundle Pounds
Cut from black steel sheets painted black. All of our Painted Metal Lath is heat treated and reannealed after being cut and expanded, giving the metal longer life and greater strength. Our Milcor Special Elastic Paint adds further protection.	2.20	24 x 96	9	16	35
	2.50	24 x 96	9	16	40
	3.00	24 x 96	9	16	48
	3.40	24 x 96	9	16	54
Cut from Coppered Metal. Painted Black.	2.20	24 x 96	9	16	35
	2.50	24 x 96	9	16	40
	3.00	24 x 96	9	16	48
	3.40	24 x 96	9	16	54
Cut from galvanized open-hearth steel sheets.	2.50	24 x 96	9	16	40
	3.40	24 x 96	9	16	54
Cut from pure zinc.	3.03	24 x 96	9	16	48
Cut from cold rolled copper.	3.31	24 x 96	9	16	53

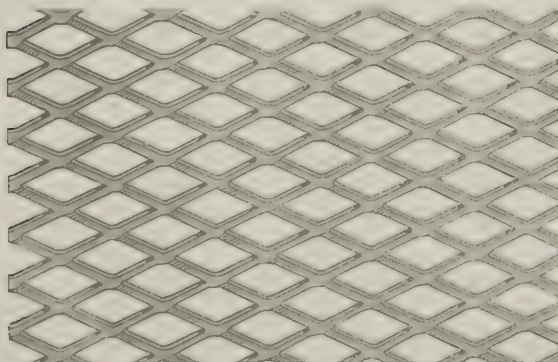
Also furnished in ARMCO Ingot Iron, 2.50 and 3.40 lbs. only, Painted Black or cut from Galv. ARMCO Ingot Iron



Expanded from Black Open-Hearth Steel "Coppered Metal," or ARMCO Ingot Iron Sheets, Heat-Treated and Reannealed, coated with Special Elastic Black Paint.



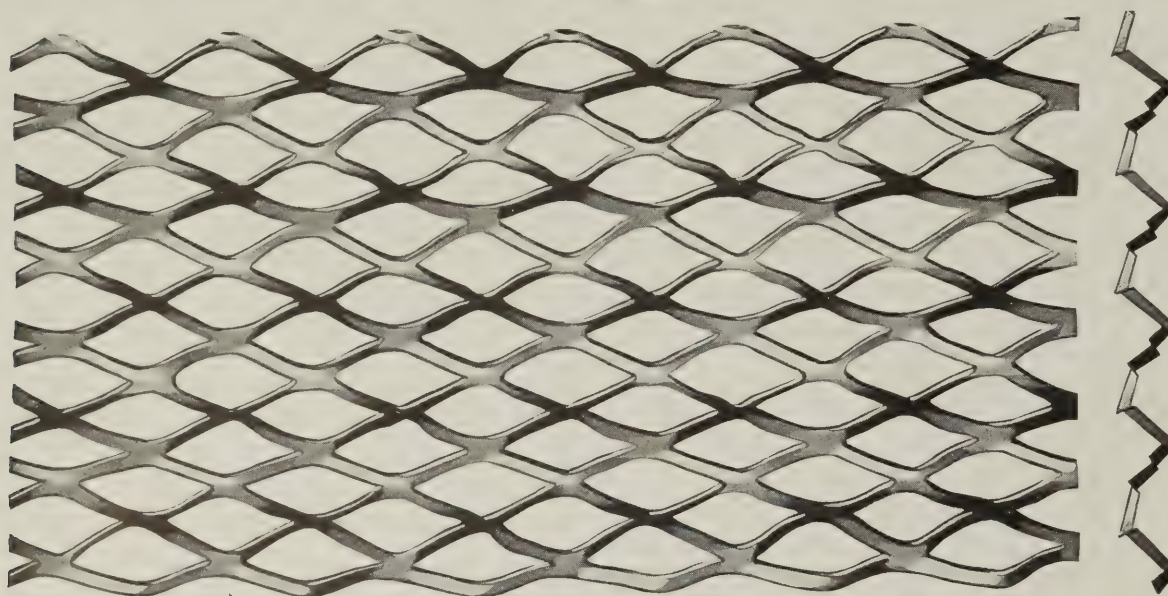
Expanded from Tight-Coat Galvanized Sheets



Expanded from Sheets of No. 11 Pure Zinc.



Expanded from Sheets of 16-oz. Cold Rolled Copper.



MILCOR Corrugated Netmesh

—a Self-Furring Diamond-Mesh Lath

NETMESH Corrugated resembles regular Milcor Netmesh Lath, with corrugations added, running the length of the sheet. No furring strips are required—the corrugations act as furring and allow the plaster to fill in between the lath and the supporting studs.

This lath is used extensively for exterior stucco work, either in back plastering construction or where it is nailed direct to the sheathing.

Milcor Corrugated Self-Furring Netmesh Lath can be furnished in these grades:

Cut from black, Open-Hearth steel, heat-treated and reannealed after expansion, giving the metal longer life and greater strength. Our Milcor Special Elastic Paint adds further protection.

Cut from Coppered Metal, Painted Black.

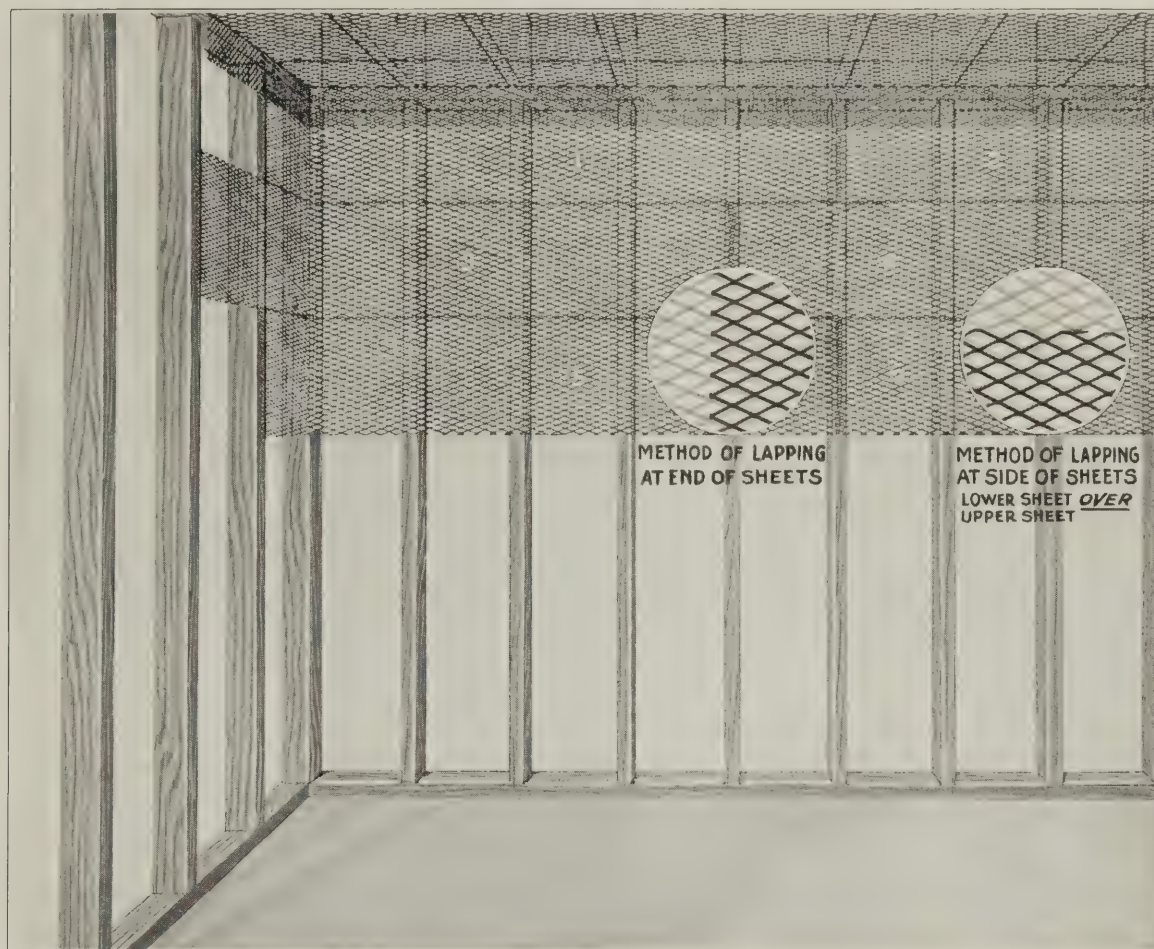
Cut from ARMCO Ingot Iron, black sheets, painted black, in 2.50 and 3.40 lbs. only.

Cut from Tight Coat Galvanized Open-Hearth Steel.

Cut from ARMCO Ingot Iron tight-coat galvanized sheets, in 2.50 and 3.40 lbs. only.

TYPE	Weight per Square Yard Pounds	Size of Sheets Inches	Number of Sheets in Bundle	Square Yards In Bundle	Weight per Bundle Pounds
Cut from black steel sheets, reannealed and painted black after expanded.	2.20	24 x 96	9	16	35
	2.50	24 x 96	9	16	40
	3.40	24 x 96	9	16	54
Cut from galvanized open-hearth steel sheets.	2.50	24 x 96	9	16	40
	3.40	24 x 96	9	16	54
Cut from Coppered Metal.	2.20	24 x 96	9	16	35
	2.50	24 x 96	9	16	40
	3.40	24 x 96	9	16	54

Also furnished in ARMCO Ingot Iron, 2.50 and 3.40 lbs. only, Painted Black or cut from Galv. ARMCO Ingot Iron



MILCOR Lath on Wood Studs

Using 2 x 4-inch Studs, set 16 inches, center to center

As shown above, Sheet Number 1 is first applied, beginning at first stud beyond corner. The slant of strands should be *inward and downward*.

Lath Sheet Number 2 is next, its end lapping over end of Sheet Number 1.

Lath Sheet Number 3 is started at *second stud* so that the sheets will break joints and be continuous around corner.

Sheets Numbers 4, 5 and 6 follow in order shown. Sheet Number 5 laps Number 3, which in turn laps Number 1. The remainder of sheets are placed in same manner until lathing is completed.

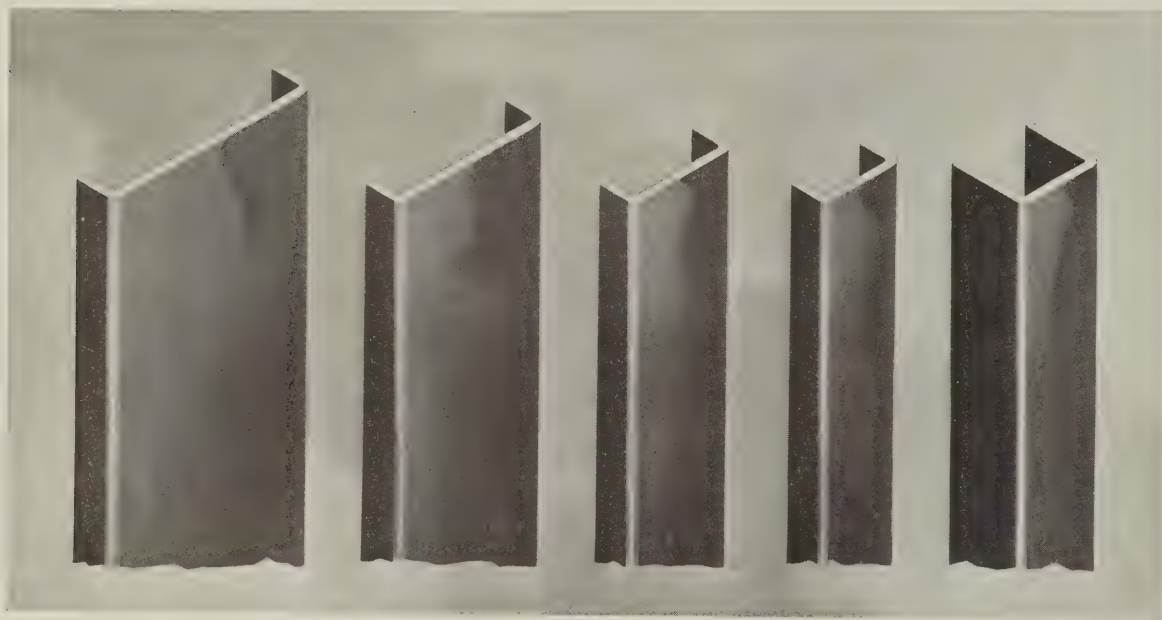
Then ceiling sheets are applied, lapping over on wall as shown, not less than six

inches, and are wired to wall lath with No. 18 Galvanized tie-wire.

Fasten lath, Netmesh or No. 1 Stay-Rib, to studs with 4 d. nails, driving them in firmly until almost home and then clinching them over against juncture of strands. No. 12, 1-inch Galvanized Nails with $\frac{5}{8}$ " Flat Heads, or No. 14 $1\frac{1}{4}$ -inch staples may also be used. On wood studs, lath should be nailed or stapled every six inches.

For precise corners with straight, true lines, Milcor Expansion Corner Bead No. 1 and No. 2 should always be used.

See details on pages 62 to 67.



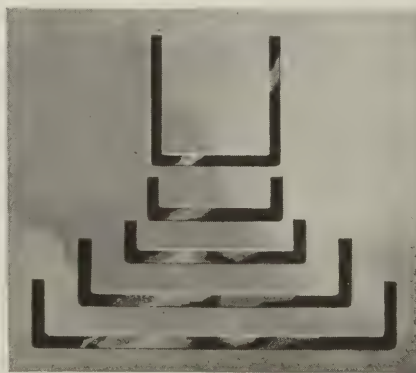
Milcor Cold Rolled Steel Channels

USED as supporting-members for Milcor Metal Lath on solid partitions, on hollow-stud partitions or for suspended ceilings, Milcor Cold Rolled Steel Channels are practical and efficient.

Made of 16-gauge pressed steel, they combine great tensile strength with the advantage of light weight. They provide the desired preciseness and rigidity of support for lath and plaster and thus insure true lines as well as sturdiness.

Because these Milcor

Channels are *Cold Rolled*, they are ideal for solid partition and suspended ceiling construction — they are lighter and more easily bent or cut than hot rolled channels.



Cross Sections showing Milcor 3/4, 1, 1 1/2, 2-inch, and Milcor CUBRO Cold Rolled Steel Channels. (Also furnished Hot Rolled if specified.)

The legs are accurately pressed at right angles to obtain a level surface on all three sides and to give maximum rigidity, eliminating any tendency to wobble while wiring in place. Milcor Steel Channels are uniform and straight throughout their entire length.

Various adaptations are shown on pages 15 to 26.

The following sizes and weights are carried in regular stock:

3/4 inch—weight per 1000 lineal feet—276 lbs.
1 inch—weight per 1000 lineal feet—332 lbs.
1 1/2 inch—weight per 1000 lineal feet—456 lbs.
2 inch—weight per 1000 lineal feet—552 lbs.
Cubro Channels—Wt. per 1000 lineal ft.—270 lbs.

Depth of Legs on 3/4", 1", 1 1/2" and 2" Channels, 3/8-inch; Cubro Channels are 5/8-inch square.

3/4-inch and Cubro Channels are furnished in stock lengths of 12, 14, 16, 18 and 20 feet; packed 20 Channels to a bundle. 1, 1 1/2 and 2-inch Channels are furnished in stock lengths of 16, 18 and 20 feet; packed 10 Channels to a bundle.

Steel Channels for Metal Lath Walls, Ceilings and Partitions

PLASTERING on a base of Stay-Rib or Net-mesh Metal Lath on any of the five types of Milcor Steel Channels described on Page 14, answers every requirement for the construction of fireproof walls, ceilings and partitions. Whether the specifications call for hollow steel-stud partitions or solid partitions—or attached or suspended ceilings—these channels and Milcor metal lath, properly erected and plastered, insure complete safety and satisfaction at minimum cost.

While solid partition construction commends itself particularly for its space-saving advantages, conditions



Hollow partition erected with Milcor Steel Channels. Rigidity of Stay-Rib Metal Lath permits wide spacing of channels—thus saving materials, labor and time.

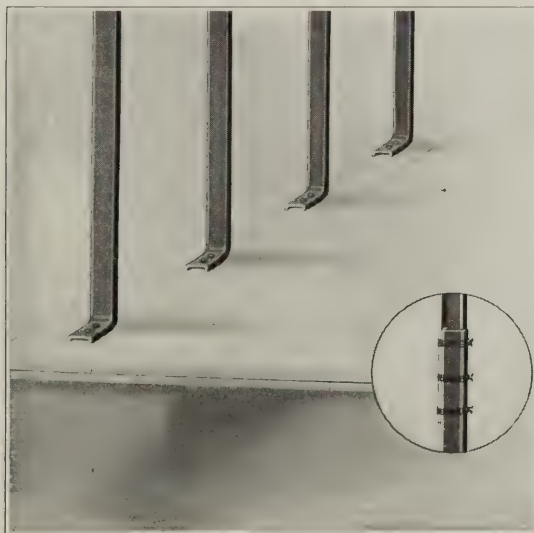
frequently demand the use of hollow partitions. One type of hollow partition erected with Milcor Steel Channels is shown here. The illustration indicates angle irons used as floor runners. Steel channels are more frequently used as floor and ceiling runners, however, because they hold the upright channels more securely in position during course of erection.

Milcor Cubro Channels are particularly adaptable as runner channels because the legs are high enough to permit pinching on either side of the upright channels as the only means of holding the uprights in position . . . as shown at bottom of page 16.

Solid Partitions

SSOLID partitions, metal lathed and properly plastered, have definitely established their practicability. For they are space savers—thoroughly firesafe—permanently immune to crack-

ing—effective barriers to sound—and they are economical. They are light in weight, too—an important advantage in large structures. The space-saving element is so vital in some types



Solid partition construction with steel channels secured to wood floor. Insert shows spliced channel ends.



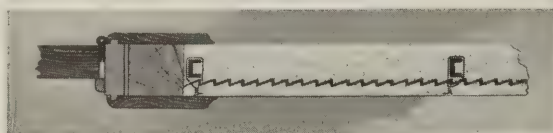
Solid partition construction showing method of fastening steel channels to concrete ceilings with ceiling runner channel.

Solid Partitions (Continued)

of buildings as to be a deciding factor in the financial success of such buildings.

The prevailing type of solid partition is two inches thick. It is merely a series of steel channels erected on prescribed centers, with metal lath wired on one side of the channels, and plaster applied on both sides of the lath to a total thickness of two inches—in other words a two-way metal-lath-reinforced vertical slab of Portland Cement, Gypsum, or other plaster, two inches thick, anchored rigidly by steel channels to both floor and ceiling construction.

Strength: Due to the fact that the entire slab, or solid partition, is reinforced transversely by sheets of metal lath which are securely wired to steel channels, the entire construction acts as a unit, both horizontally and vertically, in resisting distortion by physical impact or by fire. For this reason, metal lath solid partitions are superior to masonry or block unit partitions which can



Cross-section of solid partition showing position of Milcor Steel Channels and Netmesh lath embedded in plaster. See detail drawings, Page 20.

depend only on their weight and the strength of their mortar joints, for their homogeneity and resistance to impact.

Continuous transverse metallic rein-

forcement, completely embedded in the plaster, as it is in the metal lath 2-inch solid partition, makes this type of partition stronger as a whole and safer than partitions plastered over small units consisting of thin sheets of precast plaster, pressed pulp or other material, which by their nature and their use cannot possibly supply any substantial degree of reinforcement either horizontally or transversely.

Density: In density, the metal-lath-reinforced 2-inch solid partition also ranks higher than other types of partitions. Portland cement plaster, applied with a trowel as it is over the metal lath, becomes much denser than cement that is poured in place. Troweled gypsum plaster is likewise much more dense than any type of precast gypsum block. Lime plaster, Keene's cement, and other plastering materials are at their best when applied on metal lath.

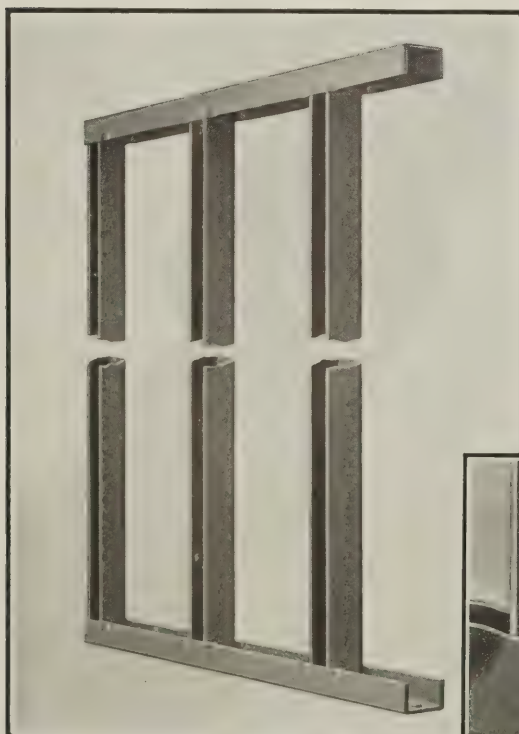
The density of metal lath 2-inch solid partitions helps them to retard transmission of sound.

Speed of erection—practicality—firesafety: Financing conditions usually demand completion and occupancy of a building as soon as possible after operations start. The 2-inch solid partition permits speedy erection without any possible sacrifice of safety. The skeleton type of steel frame building makes this non-bearing metal lath wall and partition construction practical and highly desirable from every standpoint.

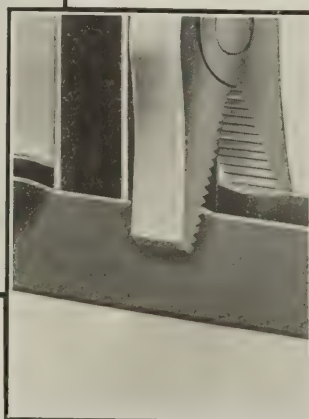
Thick, heavy, load-bearing masonry construction consumes too much ground area and decreases available floor space.

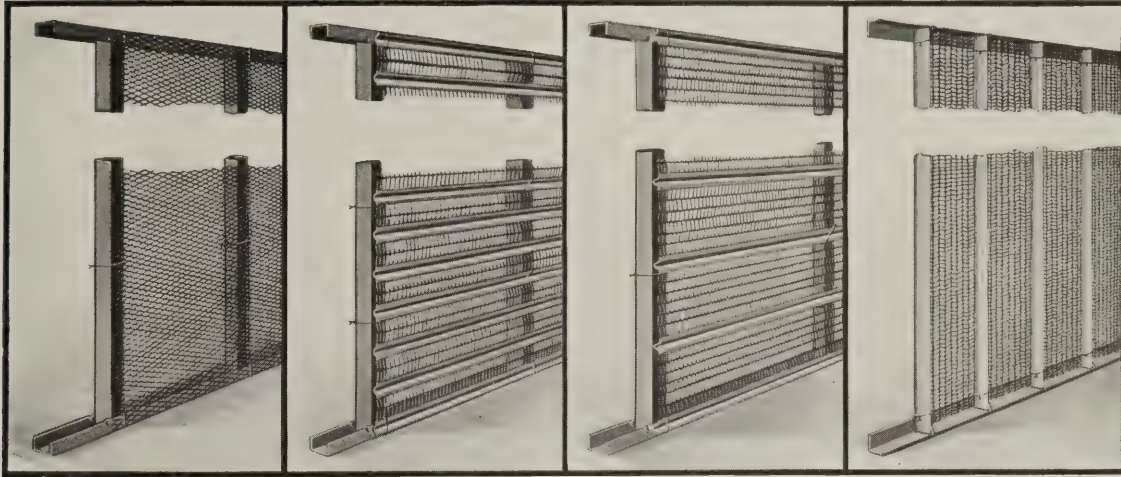
Solid partitions reduce to a minimum the space required for load bearing columns and provide maximum usable floor area. The decreased dead load made possible by the 2-inch plaster partition, effects distinct economies in design of supporting members, such as beams, girders and columns.

Firesafety is assured at minimum cost with 2-inch partitions of metal lath and plaster, due to the reinforcement both vertically and horizontally provided by this unique construction.



Milcor Cubro Channels cannot turn over. They fit snugly into Cubro runners at floor and ceiling. No wiring required for fastening upright channels to runners—simply pinch the runner channels on each side of the upright channels with pliers, as shown here. This locks the upright Cubro Channels securely in place.





Solid partition showing Milcor Netmesh Metal Lath on Cubro Channels before plastering. Floor and Ceiling Cubro runner-channels merely pinched on each side of upright Cubro Channels. Bottom runner set up on washers to permit tying of lath along bottom edge. See also Page 15.

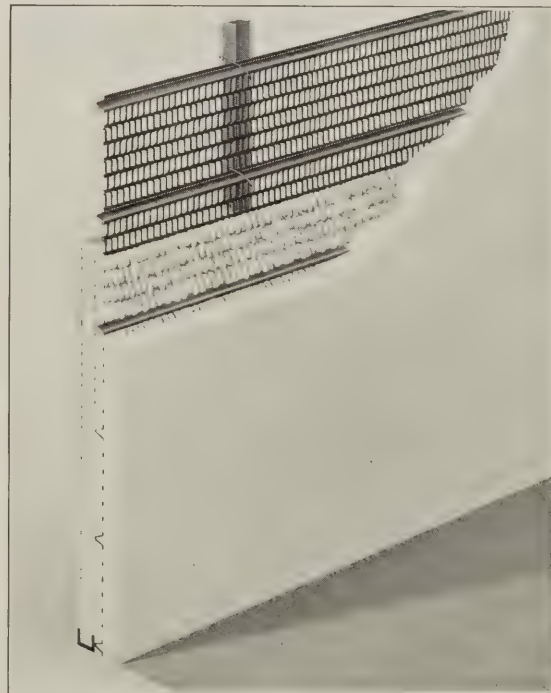
Solid partition showing Milcor Stay-Rib Metal Lath No. 1 on Cubro Channels, ready for plastering. Superior stiffness of Stay-Rib permits wide spacing of upright channels, thus saving materials, time and labor. Same method of erecting as described for Netmesh partition.

3/8" Stay-Rib Metal Lath No. 2, due to its greater rigidity, permits still wider spacing of the upright Cubro Steel Channels. The illustration above shows a solid partition ready for plastering on this high grade Milcor rib lath. Same method of erecting as for Netmesh partition.

3/4" Stay-Rib Metal Lath No. 3 has such heavy ribs that it can be used in solid partition construction without channels, with its ribs perpendicular to floor. Angle-irons or special channels may be used for floor and ceiling runners. Angle-irons are shown above. See Page 33 also.



Stay-Rib Metal Lath No. 1 in solid partition. Plaster is applied to one side and then to the other as shown here.



3/8" Stay-Rib No. 2 lath, used with Cubro channels in solid partition construction, showing application of plaster.

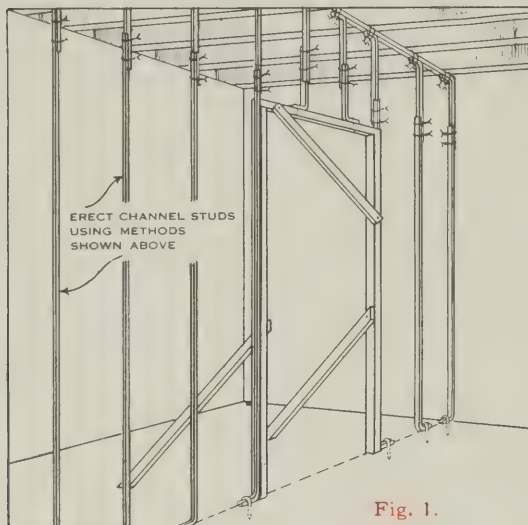


Fig. 1.

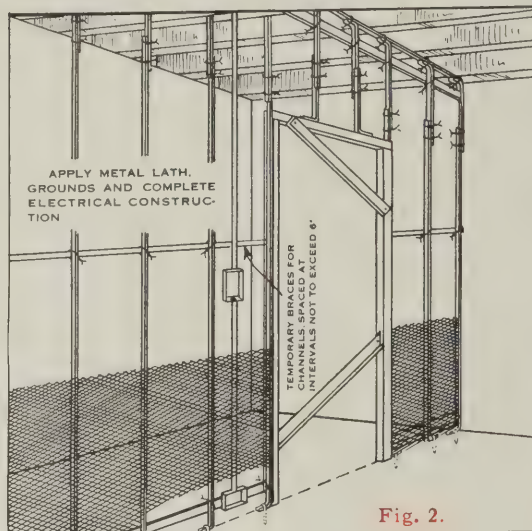


Fig. 2.

Solid Partitions With Wood-Joist Construction

AFTER laying out the position of the partition on the floor, according to working plans, and plumbing and marking the partition line at the ceiling, the door bucks are placed in position and braced temporarily as shown above. The steel channels are then spliced to desired length, erected, and fastened as explained in diagrams below. Channel stud should always be placed each side of door buck and securely fastened to it. Temporary horizontal bracing is then wired to the channels as shown in Fig 2, to align and stiffen them. Electrical conduits and outlets are then placed in position. Following that, sheets of metal lath are securely wired to the channels on the side free from the temporary horizontal braces. Sheets of lath must be staggered and

properly lapped as explained on Page 13.

The partition is then ready for plaster. A scratch coat is applied to the *lath side*. When it has set fairly hard, a backing-up plaster coat is spread over the *channel side*, so as to entirely embed the channels. As this coat of plaster approaches the temporary horizontal braces, they are removed. Straighten this coat with plasterer's rod and darby to grounds, ready for finish coat. The third, or brown coat, is then spread on the lath side, flush with the grounds. Then the finish coats are applied on both sides, making a solid partition 2 inches thick.

Trim is added when plaster is thoroughly dry, lighting fixtures are installed and partition is ready for decorating.

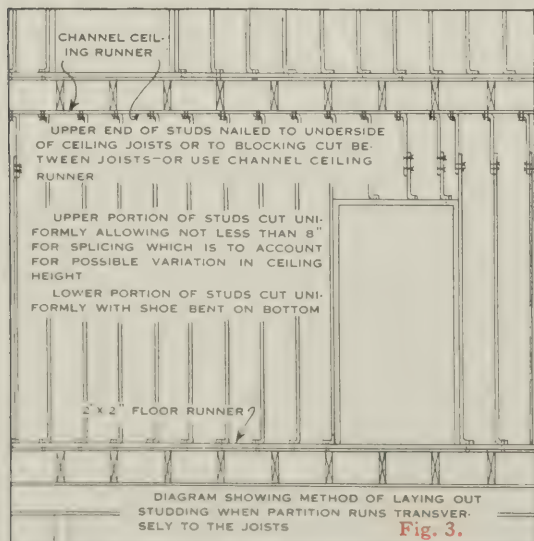


Fig. 3.

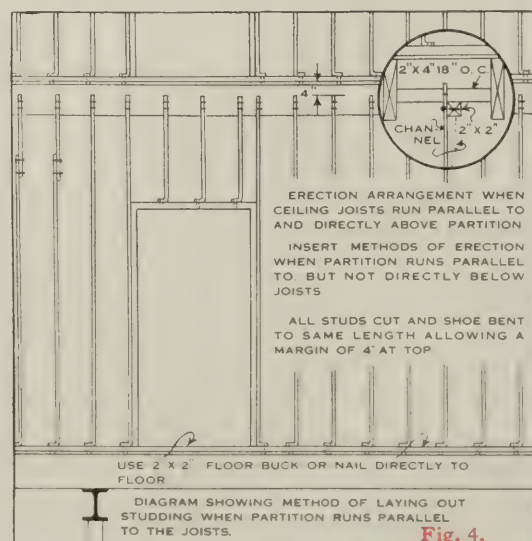
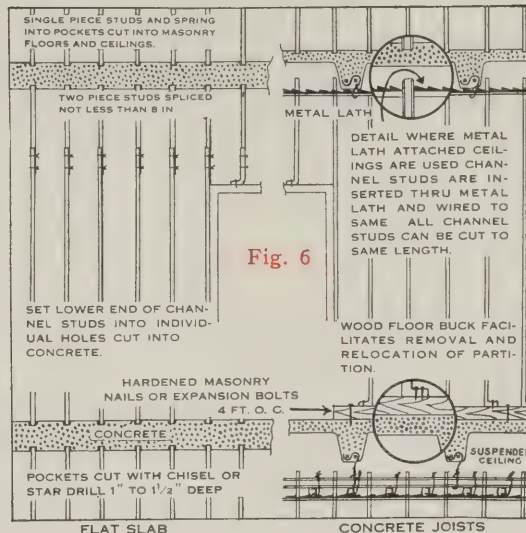
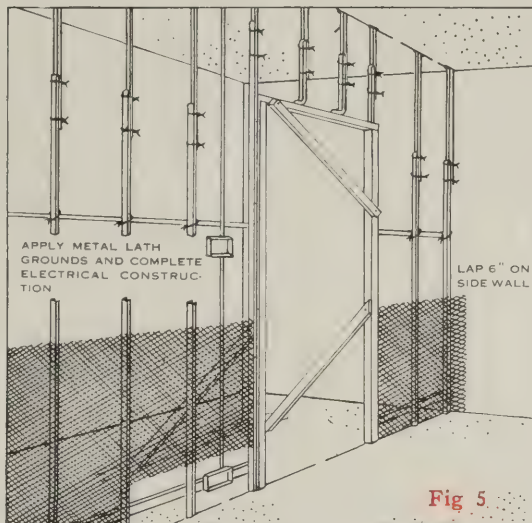


Fig. 4.



Solid Partitions With Masonry Construction

WITH masonry construction, much the same procedure as explained on Page 18 is followed, except for the fastening of the channels to floor and ceiling. Various methods of fastening channels in masonry construction are indicated in Figures 6, 7 and 8. Notes in these diagrams make them self-explanatory.

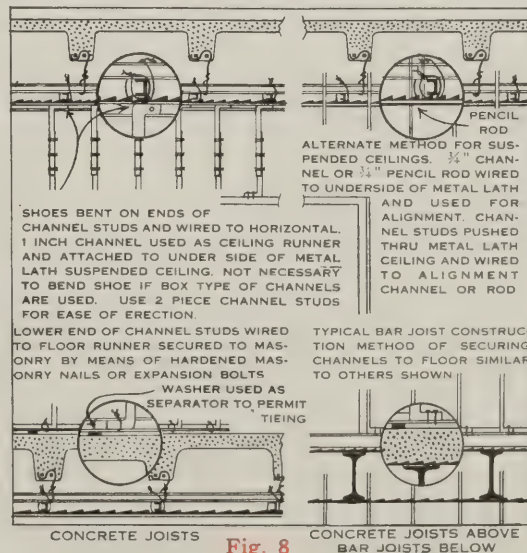
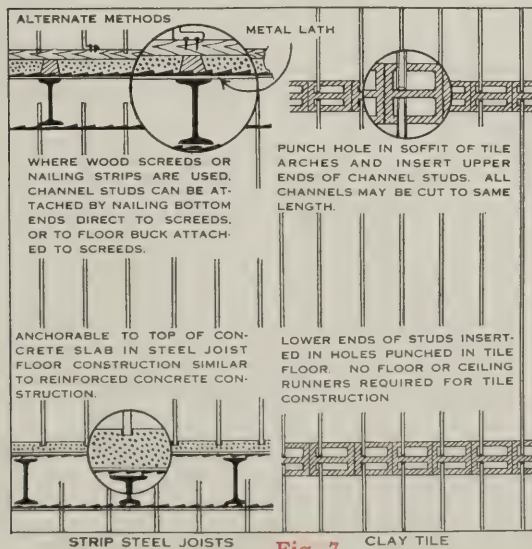
In erecting steel channel studs, either one-piece single unit channels or two-piece channels spliced near the ceiling, are used—depending on conditions at the building. When single piece studs are used with masonry construction they are all cut to same length and the holes are made deep enough in floor and ceiling to allow for slight variations in distance be-

tween floor and ceiling. One-piece channels usually are sprung into place.

Where suspended ceiling is used, one-piece channels are usually preferred because the space above the ceiling will take care of any variations in length.

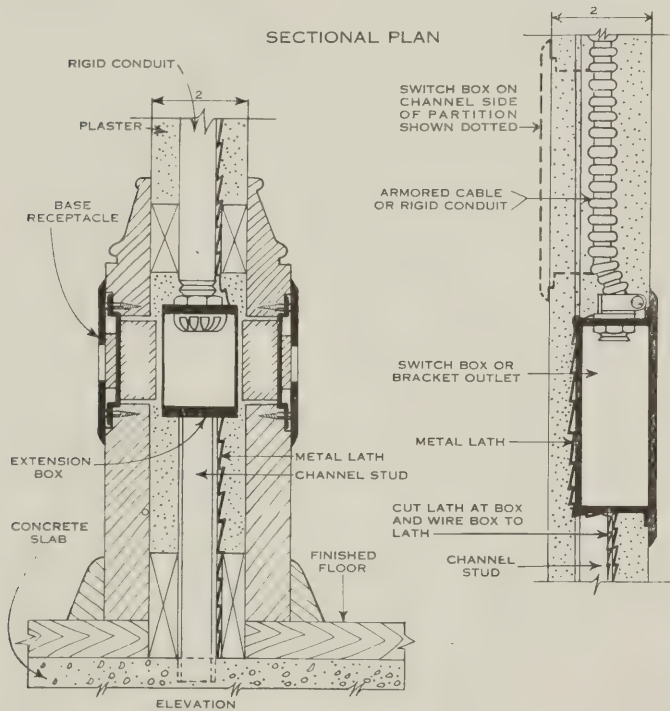
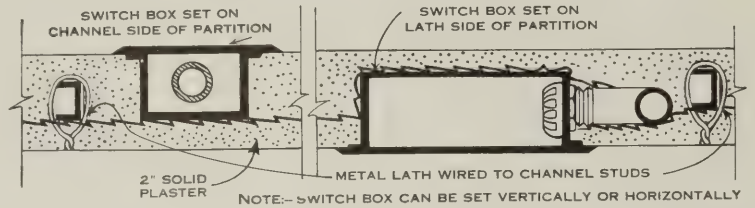
Where floor and ceiling runner channels are used, the best type to employ is the Milcor Cubro Channel, with Cubro Channels also used for uprights; but $\frac{3}{4}$ " channels may be used for uprights, with 1" runner channels and the ends of the runners bent so that the two will nest.

Wherever possible the Milcor Engineering Department will be glad to review the plans and make detailed suggestions applying to all phases of the work involved.



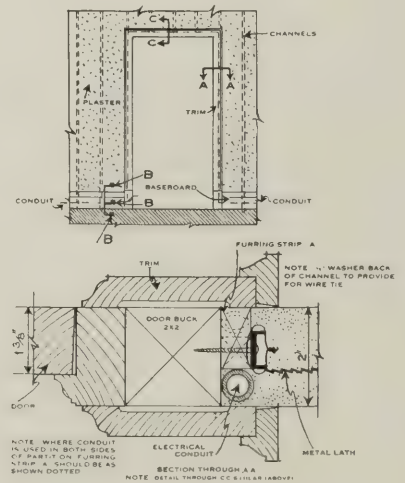
Standard Electrical Equipment for Solid Partitions

TO meet the growing demand for this type of partition, manufacturers of electrical devices have developed a complete line of standard shallow electrical switches, outlet boxes, etc. It is now possible to install all types of electrical switches, convenience outlets, receptacles, fixture outlets and boxes so they are fully concealed, just as they are in any other type of construction.

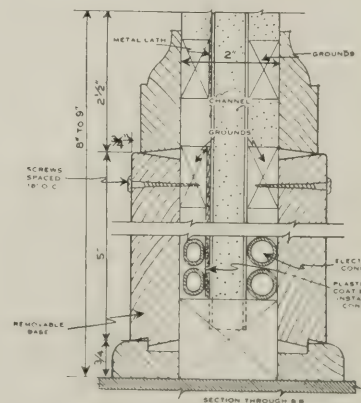
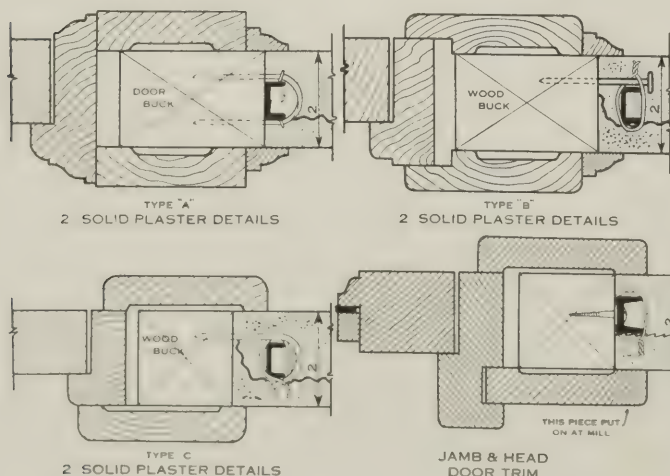


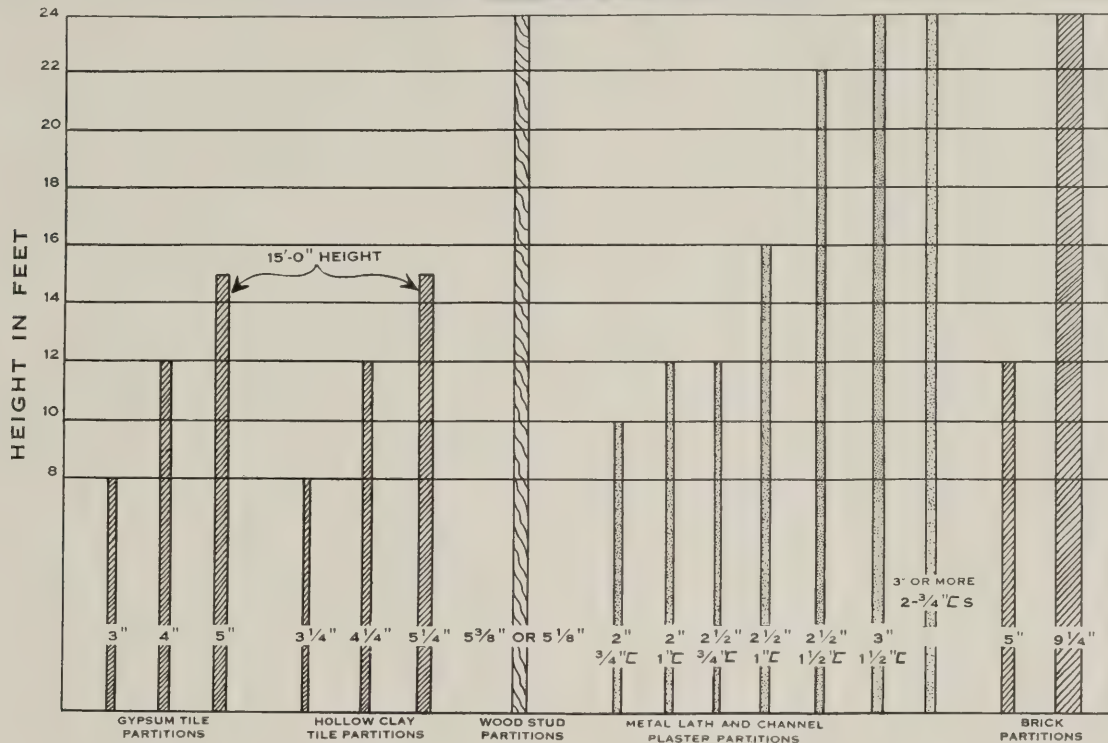
A FEW typical electrical installation details are shown here but practically every problem involving electrical equipment has been solved and we shall be glad at any time to furnish drawings and detailed information on anything not explained by these drawings.

Sidewall light fixtures on both sides of the partition, Double Electrical Outlet Boxes, and other popular demands are easily fulfilled. Write us for data on any problems of this sort.



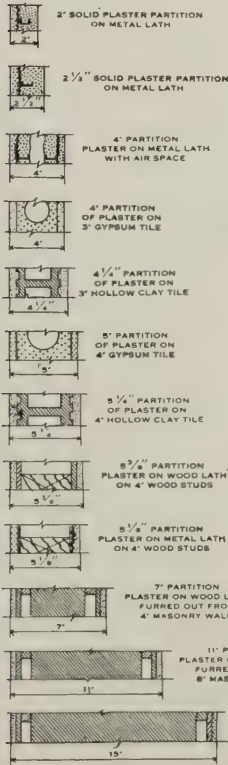
Various Door Jamb Details All drawings 1/4 Actual Size





NOTE: ALL PARTITIONS PLASTERED

Maximum Permissible Heights for Non-Bearing Partitions



THIS diagram shows the height limits of various types of partition construction from the standpoint of stability, taken from findings of the Department of Commerce (Hoover Building Code) Committee Report on "Minimum Requirements for Masonry Wall Construction."

The inherent strength of the 2-inch solid plaster partition on metal lath and steel channels, due to its manner of construction, permits safety at as great height with this narrow partition as is possible with partitions of masonry construction of considerably greater thickness.

Over 95% of all partitions do not exceed 10 feet in height. As shown in the diagram, the 2-inch solid partition of plaster and metal lath meets all requirements of strength and stability for partitions of this height.

Ability to withstand extreme fire conditions, light weight, speed of erection, permanence, sound-retarding qualities and other advantages go hand in hand with the space-saving value of the 2-inch solid partition.

Acoustical Properties

Where a high degree of sound insulation between rooms is desired, the channel studs should be run all the way to the underside of the floor slab above instead of stopping at the metal lath ceiling, and the partition should be plastered up to the slab,

so that the partition will act as a cut-off and prevent transmission of sound by means of the common air space over adjoining rooms.

In comparative tests of various types of partitions for sound transmission, 2-inch solid par-

titions of plaster and metal lath have proved themselves to be more sound retarding than the average clay tile and plaster partition, plaster-board solid partition, gypsum block partition and other types of bulky partitions.

Space Saving a Vital Factor in Hotels

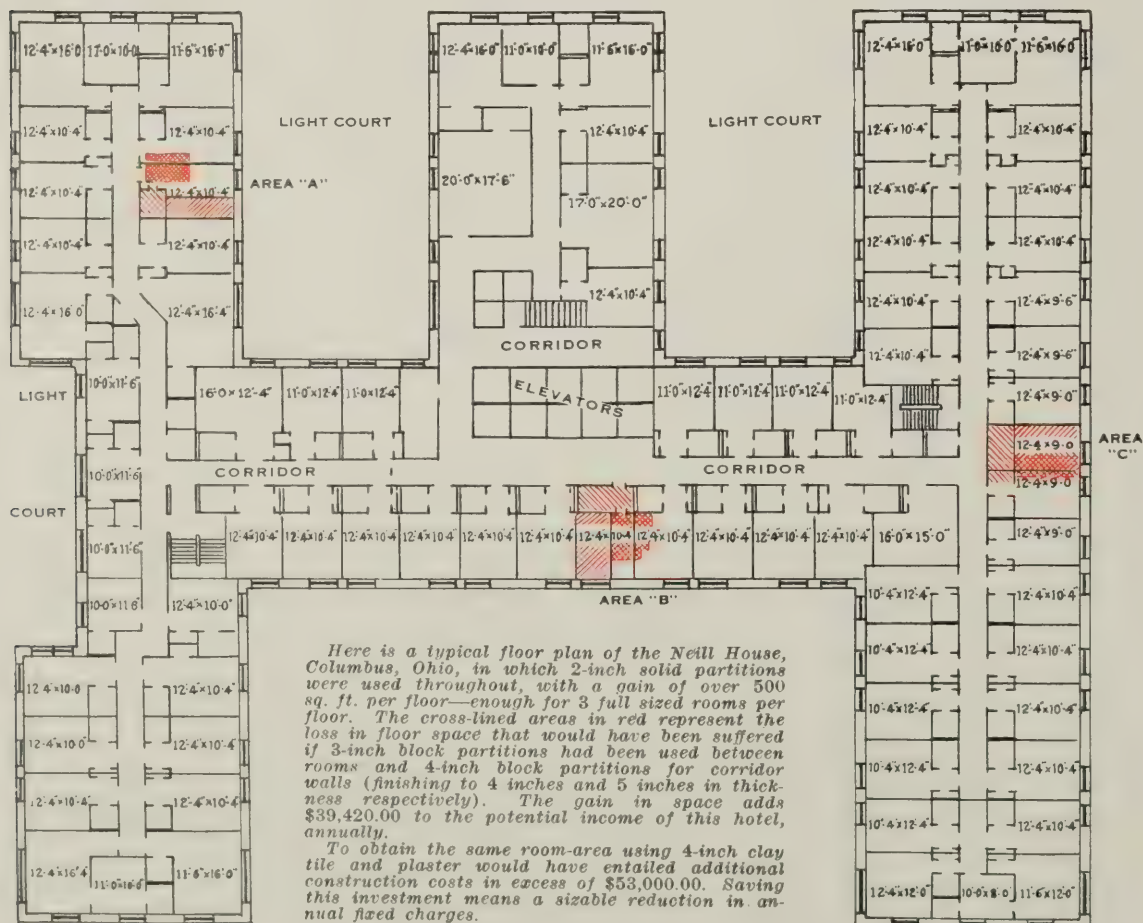
NO other types of partitions so completely meet the requirements of hotel occupancy as do solid partitions of metal lath and plaster.

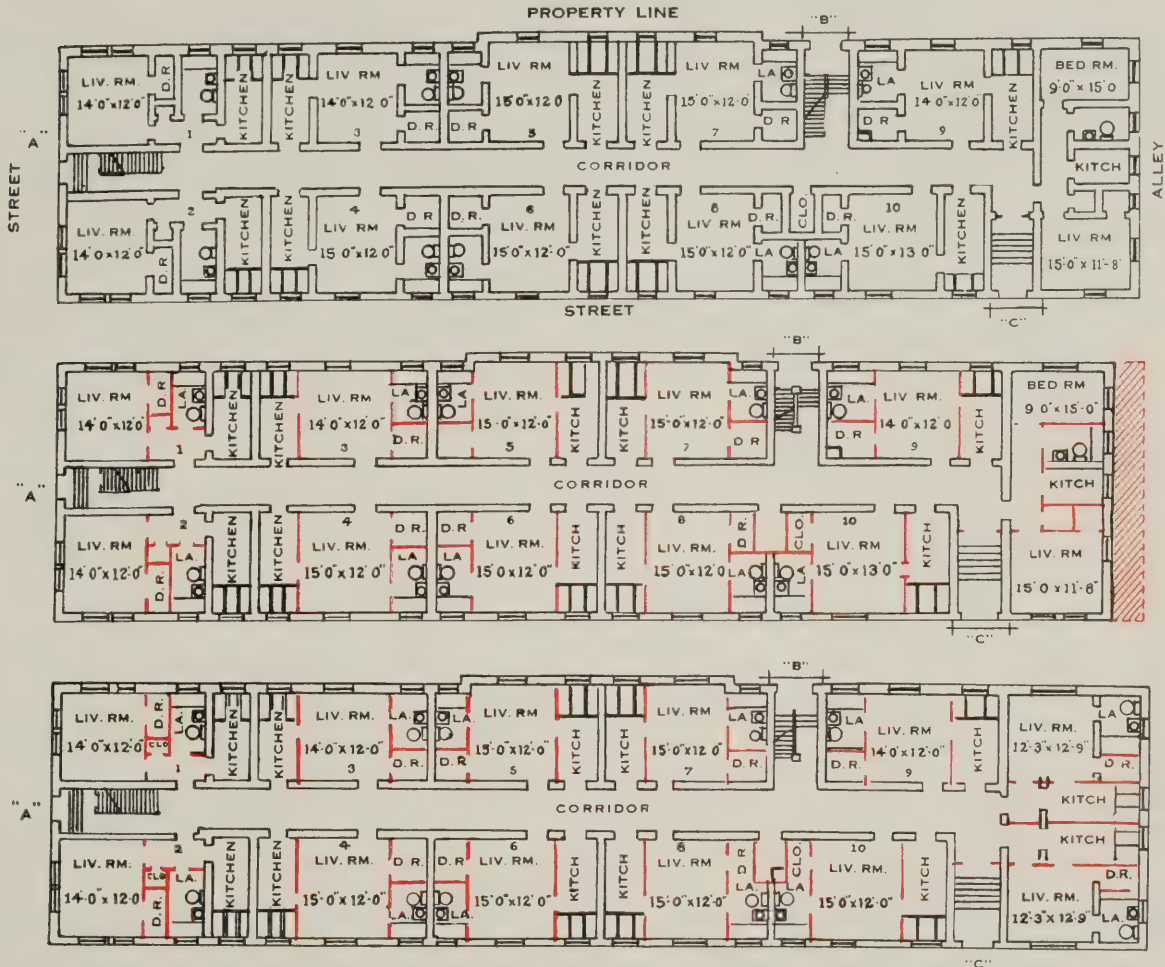
Because of a saving of two or more inches in thickness for each linear foot of partition, 2-inch solid partitions used in place of ordinary thick partitions frequently enable the architect or builder to increase by 5% or more the net usable space in the structure.

These savings can be translated into terms of actual *construction cost* or into terms of *increased*

income. From both standpoints the advantages of the 2-inch solid partition are important to the investor—sometimes vitally important.

The greater the number of rooms within a given floor-area, the greater are the space saving advantages of 2-inch solid partitions. For hotels, hospitals, office buildings, apartment buildings, etc., the savings frequently determine the financial success of the building. Hundreds of hotels and other buildings throughout the country have taken profitable advantage of this modern trend in safe construction.





Solid Partition Advantages in Apartments

AN impressive graphic example of the advantages of 2-inch solid partitions in apartment house construction is shown above. The top figure shows a typical apartment floor-plan with ordinary 2" x 4" partitions (total finished thickness 5½ inches). The middle figure shows the same floor-plan with 2-inch solid partitions (in red) instead of the 5½-inch type for all non-bearing partitions except those required to carry plumbing and service piping. . . and the red crosslined area indicates the amount of floor space thus saved on each floor—in other words an important saving in ground area occupied by the building, which in some cases might prove vitally important. The lower figure shows

how the use of the total ground area consumed in the top figure, with 2-inch solid partitions, would make possible a rearrangement of space at the right end of the building to provide for one complete additional apartment. If, instead of shortening the building, its original length is retained, 2-inch solid partitions (as indicated in red) would add 118.4 sq. ft. to the 523 sq. ft. apartment at the extreme right end of the middle figure. An additional gain of 37 sq. ft. would be gained by relocating the chimney and re-arranging the closet space, making a total of 678 sq. ft., sufficient for two apartments of the same average size as the others, on each floor.

With this revised plan of construction there

would be (for a 3-story building) an increased cost of about \$1500 for additional partition work, plumbing and fixtures. The gross income from the building as originally planned would be \$16,560 (figured on the basis of average prevailing rentals), while the income from the revised plan, on the same ground area, would be \$17,460.

After deducting interest, taxes and depreciation on the basis of 10% of total investment, the net income from the original would be \$6560 as compared to \$7305 for the solid-partition structure, or a gain in net income of \$745, which is a *gain* of 11.4% *over the net annual income* obtained from the original layout.

For Office Buildings

THE supposition that relocation or removal of 2-inch solid partitions of plaster and metal lath is difficult or impracticable, is a fallacy. Investigations have shown that there is little or no salvage in the wrecking of block partitions—and this has been one of the stock arguments when comparing block partitions with solid partitions for office buildings. With this theoretical disadvantage removed, the many other

points of superiority of metal lath partitions are outstanding. And it is possible to facilitate relocation or removal of metal lath partitions by using 2" x 2" wood nailing strips along the floor.

Thousands of dollars annually can be added to the income of office buildings by the use of modern 2-inch solid partitions instead of old-type thick partitions.

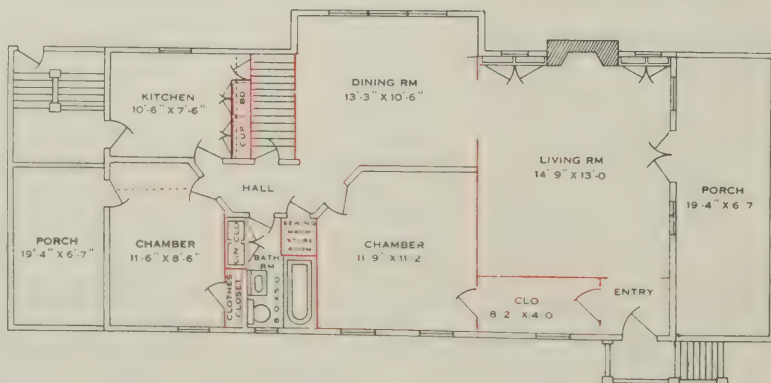
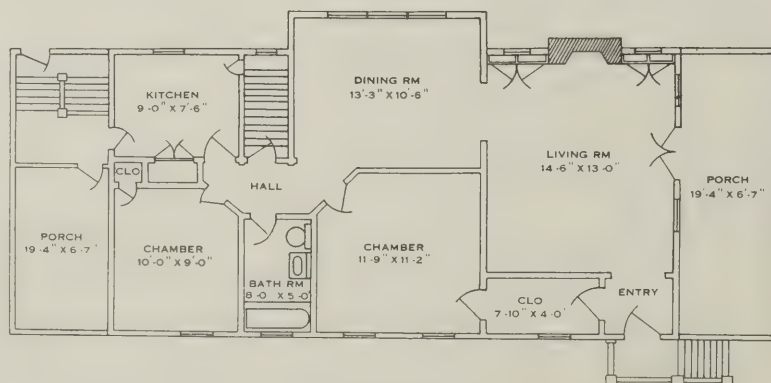
Space Saving in Typical Five Room Bungalow

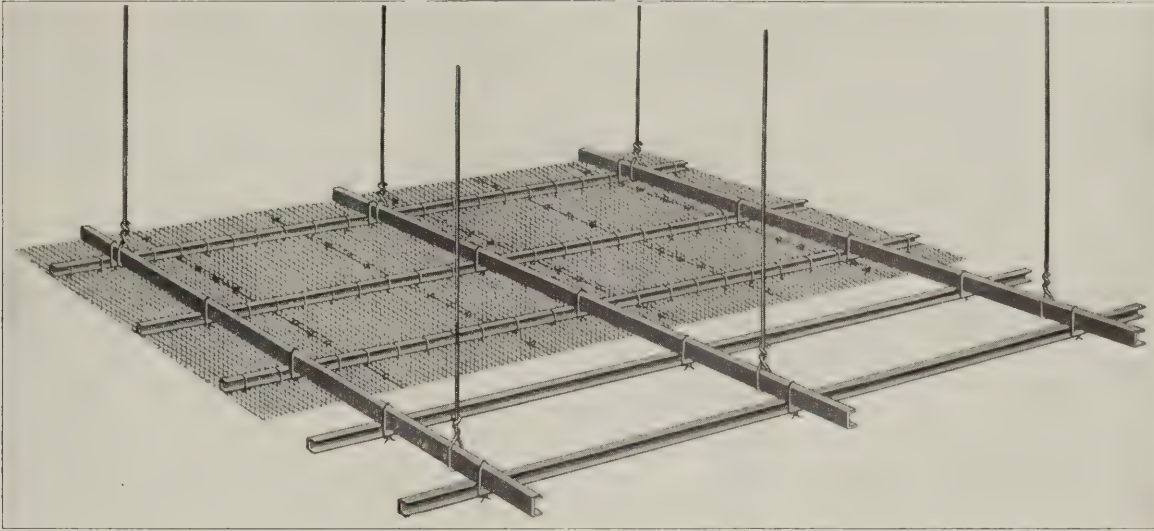
HERE is the floor plan of a typical five room bungalow with ordinary 2" x 4" partitions plastered on both sides to a total thickness of 5½ to 6 inches. Below is the same floor area re-planned with 2-inch solid partitions (shown in red) for all non-bearing partitions.

In the revised layout the following advantages are gained by the 2-inch solid partitions:

Living room 3 inches longer; sewing machine storage or cabinet space provided by rearranging bathroom; linen closet space gained; clothes closet location and back bedroom improved, making possible a door to sleeping porch from bedroom; kitchen larger and cupboard space and location improved.

The few inches saved by use of 2-inch solid partitions in homes often eliminates many little objections, makes the house more comfortable and increases its desirability and its value.

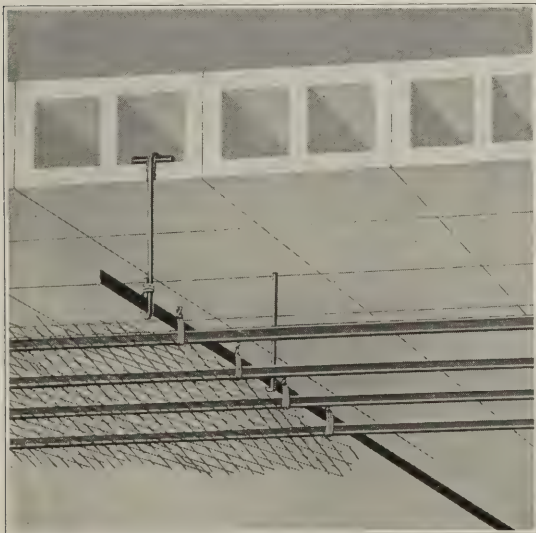




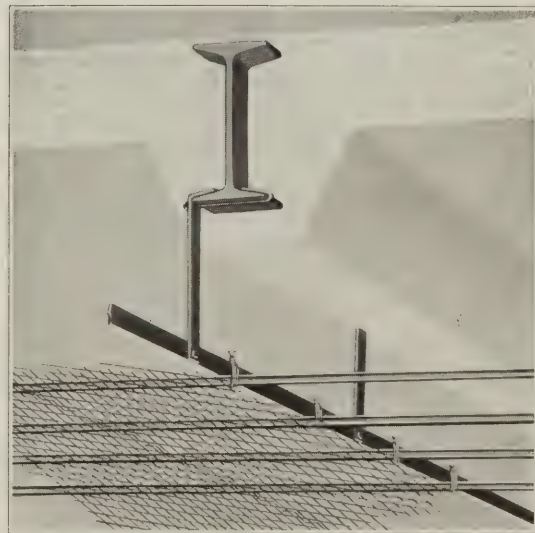
Suspended Ceiling Construction

FOR suspended ceilings, either Net-mesh or Stay-Rib Metal Lath is highly practical and efficient. Flat steel hangers 1 inch by 3/16 inch, or 1/4-inch round steel hangers, spaced not to exceed 4 feet apart, attached to the floor construction, form the support, from which is suspended framing, made up of 1 1/2-inch Milcor Steel Runner Channels crossed by 3/4-inch Milcor steel Furring Channels and tied with No. 16 Wire.

Framing is secured to hangers by 3/8-inch bolts where flat steel hangers are used, or by a double twist of the 1/4-inch steel rod where rod hangers are used. Round hangers may also be bent at right angles and wired to framing with No. 8 galvanized wire, triple-twisted. Stay-Rib or Net-mesh Lath is then wired to framing with No. 18 wire fastened at 6-inch intervals to channels. An ideal crack-proof, firesafe, secure ceiling is produced by this method.



Showing method of attaching Milcor suspended ceiling to hollow tile.

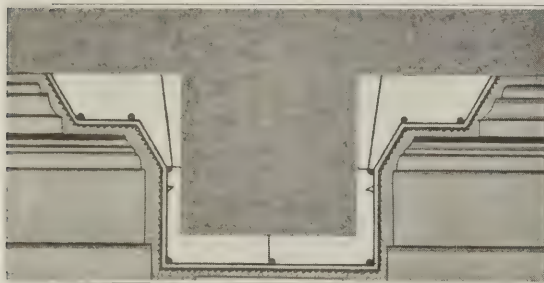


Showing method of attaching Milcor suspended ceiling to beam embedded in concrete.

Netmesh for Ornamental Beams

GREATLY facilitating the art of ornamental plastering, Milcor Netmesh Lath has gained recognition as the ideal medium for artistic architectural effects.

The perfect pliability of Netmesh permits its formation easily into any desired shape. It maintains its highly desirable rigidity after such shaping.



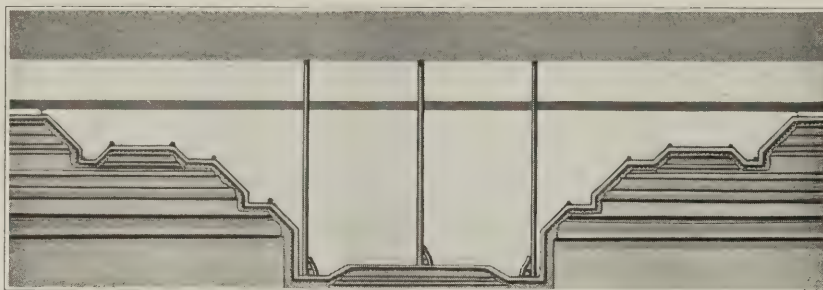
Ornamental Beam and Cornice over unattractive concrete beam. 1/4-inch Rod Hangers placed before pouring concrete. Holes are drilled for Brackets—3/4-inch Milcor Steel Channels—after forms are removed.

No bending machinery is required to shape Milcor Netmesh, regardless of the directions required for the bends.

The precisely formed Diamond units of Netmesh provide a sure key to grip the plaster at any angle.

Some of the adaptations of Netmesh Lath to Ornamental Beam and Cornice Work are indicated in these illustrations. Standard Specifications applying to such construction are outlined on pages 87 to 95.

On many Ornamental Plastering problems, Milcor Expansion Corner Beads are nicely adapted, for both inner and outer angles of any desired degree. The problem of procuring precisely true lines on beams, pilasters and columns is made simple with these practical products. And Expansion



The Milcor Method of erecting support for False Beams and Suspended Ceiling below concrete floor. Hangers are placed before pouring concrete.

Corner Beads not only insure true lines but add a sturdiness to the work which is impossible of attainment by any other means.

Not the least of the advantages offered by Netmesh in Ornamental Plastering and Stucco work, is the fact that this Milcor construction insures firesafeness to the underlying members of the structure. Milcor Metal Lath and other Milcor Metal Building Products are positive protection against such costly menaces as fire and those conditions which ordinarily cause cracking. See Standard Specifications, pages 87 to 95.



Perspective of a Milcor False Beam below concrete floor, showing adaptation of 3/4-inch Milcor Steel Channels and Milcor Netmesh Lath. Milcor Expansion Corner Bead insures precisely true lines on such work.

For Firesafe Girders and Columns

THE life of a building depends on its interior columns and girders. Of what avail is it for them to resist flames if they eventually collapse from the heat of the fire! Steel must be insulated from heat, to be firesafe.

The Milcor Method with Milcor Metal Lath offers a practical, economical, safe solution to this problem.

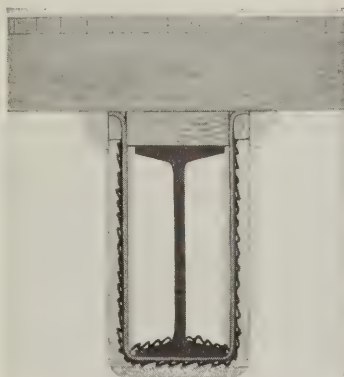
The One-hour Rating of the Underwriters' Laboratories, accorded to metal-lathed lumber construction, and the low temperatures recorded in the hollow spaces of metal-lathed floors and partitions in the Underwriters' tests, serve to emphasize the greater degree of fire-resistance gained by protecting incombustible supports — steel beams, columns and girders — with Milcor Metal Lathed plaster.

Actual experience in the fierce fires of Baltimore and San Francisco and other conflagrations, as well as tests of the most scientific nature, have developed the facts that exposed steel beams and columns are not firesafe and

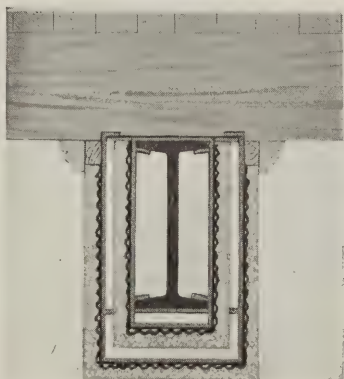
that protective material is needed which is not only incombustible and heat-insulating, but also capable of resisting strains of expansion and contraction, impact of falling parts and the erosion of forceful streams from fire hose.

The Milcor Method of metal lath protection provides dead air spaces around the steel work and accomplishes effective protection by surrounding every supporting member with real insulation against heat and flames.

The most important load-bearing members in modern buildings — the columns — need Milcor Metal Lath protection. Single-layer protection shows a minimum fire-resistance of 45 minutes and double-layer protection, 1½ hours, for structural steel columns. Properly furring out from the column so as to provide an air space of one inch between column and lath, and covering with plaster to a thickness of at least ¾ inch, insures fire-resistance for at least two hours on cast iron columns. See Standard Specifications, pages 87 to 95.

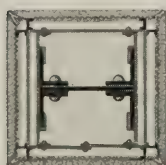


Steel Girder protected by Single-Layer Milcor Netmesh and ¾-in. Plastering.

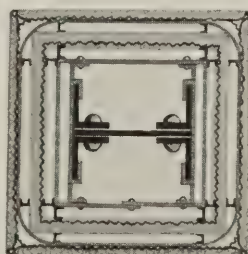


Girder protected by Double-Layer Milcor Netmesh and Double Plastering.

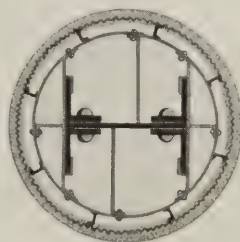
Steel Column with single Netmesh-plastered protection. Notice adaptation of



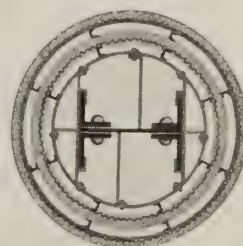
Milcor Expansion Corner Beads with Netmesh.



Double-layer protection with dead-air chambers. Expansion Corner Bead on outer corners only.



Steel Column with single-layer Netmesh-plastered protection in pilaster formation. Notice the adaptation of Milcor Steel channels.



Double-layer Netmesh-plastered protection in pilaster form. Notice the dead-air chambers provided by use of Milcor Steel Channels.



Stay-Rib Lath No. 1, Black Asphaltum Painted.

MILCOR Stay-Rib Metal Lath No. 1

THE saving in material and labor-cost of erection, in addition to supreme utility value, make Milcor Stay-Rib Metal Lath the most practical base material available for either plaster or stucco work, interior or exterior.

Milcor Stay-Rib No. 1 is designed for maximum rigidity and economy. It is self-furring and an ideal carrier for plaster or stucco. The longitudinal Ribs, or Beads, $\frac{1}{2}$ inch wide, are spaced $1\frac{3}{4}$ inches center to center and are interconnected at $\frac{1}{4}$ -inch intervals by stays, or strands. These strands, in turn, are reinforced strongly at their centers by a stiffening member.

An exclusive Milcor Expansion Process, possible only on the special machinery designed and built by Milcor Engineers, is responsible for the ideal Stay-Rib design—a design which presents an

extraordinarily large surface of metal, so facilitating the plastering work as to permit *scratching in and doubling up* from one scaffold—practically two-coat work. This contributes a very worth-while saving in time and labor. Materials, too, are saved, because the extra metal surface presented requires less plaster than other types of lath.

By using $\frac{1}{2}$ -inch grounds it is possible to brown STAY-RIB Lath in one coat, thus doing two coat work, and bringing the cost of a firesafe wall down nearly to the level of wood lath construction.

Such superior rigidity is accomplished through this unique Stay-Rib design that extra-wide spacing of studs and joists is permissible—which is another of the important savings in both labor and material, accomplished through the use of Milcor Stay-Rib Lath.

Each bundle of Milcor Stay-Rib is marked with a metal tag, as illustrated here, indicating the weight per square yard, and type.



Trade Mark Reg. U.S. Pat. Off.



It actually is as stiff or stiffer than heavier lath of other design or type.

There are no jagged points on Stay-Rib, to cut or scratch the hands of workmen. They find it easy to handle while erecting as well as convenient and safe to plaster over.

For ceiling work, Milcor Stay-Rib is unequalled. The rigidity of its Ribs and the character of its expanded design, are big factors in preventing plaster from falling during application. For suspended ceilings, Stay-Rib's stiffness again saves money—fewer channels and less labor are required because spacing can be made much wider without impairing safety.

For tiled walls of lavatories and for wainscoting or other construction of similar requirements, the stiffness of Stay-Rib is of vital importance to the permanence of the work.

Milcor Stay-Rib Metal Lath No. 1, is manufactured from the following quality materials.

Cut from black open hearth steel sheets, painted black. All our painted Metal Lath is heat treated and reannealed after being cut and expanded, giving the metal longer life and greater strength. Our special elastic paint adds further protection.

Cut from Coppered Metal sheets — painted black — highly efficient in rust resistance and eminently adapted to exterior stucco work.

Cut from Tight-Coat Galvanized Open-Hearth steel sheets.

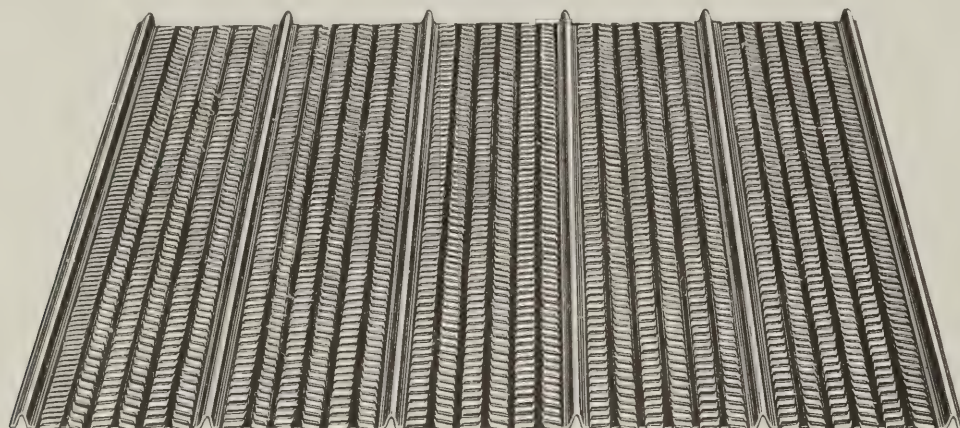
Cut from black ARMCO Ingot Iron Painted Black (in 3.40 and 4.00 lb. only).

Cut from Tight Coat galvanized ARMCO Ingot Iron (in 4.00 lb. only).

Milcor Stay-Rib Metal Lath No. 1

TYPE	Weight per Square Yard Pounds	Size of Sheets Inches	Number of Sheets in Bundle	Square Yards In Bundle	Weight per Bundle Pounds
Cut from open hearth steel sheets, painted.	2.75	24 x 96	9	16	44
	3.00	24 x 96	9	16	48
	3.40	24 x 96	9	16	54
	4.00	24 x 96	9	16	64
All our painted lath is heat-treated and reannealed after being cut and expanded, which gives the metal longer life and greater strength.					
Cut from galvanized open-hearth steel sheets.	3.60	24 x 96	9	16	57

Furnished in ARMCO Ingot Iron, both Painted and Galvanized.



MILCOR 3/8" Stay-Rib Metal Lath No. 2

THE heavy 3/8-inch ribs of MILCOR 3/8" Stay-Rib Lath No. 2, spaced 4.8 inches center to center, with five stiffening members between ribs as reinforcing for the connecting strands, furnish great rigidity and permit wide spacing of joists.

This 3/8" Stay-Rib No. 2 is ideal for all purposes where a self-furring lath is required. Attached to joists or studs with the ribs facing in and at right angles to them, it is used extensively for ceiling work, the possibility of wide spacing of channels effecting real economies in both labor and material.

MILCOR 3/8" Stay-Rib Lath No. 2 is also used a great deal for concrete construction, usually in connection with MILCOR Steel Domes, as described on pages

46 to 61, or with metal lumber and steel joists. With the latter, it may be attached above and below, providing rigid, firesafe construction at minimum cost. (*Note: 3/4" Stay-Rib No. 3, Page 32, is recommended for solid slab concrete floors.*)

After cutting, MILCOR 3/8" Stay-Rib Lath No. 2 is heat-treated and re-annealed which relieves any internal stresses that might have resulted in the expanding process and gives the metal longer life and greater strength. Our special elastic paint adds further protection. This lath is produced from black open-hearth steel sheets painted black, from Galvanized Steel Sheets, from ARMCO Ingot Iron,* (galv. or painted black) and from Coppered Metal (painted black).

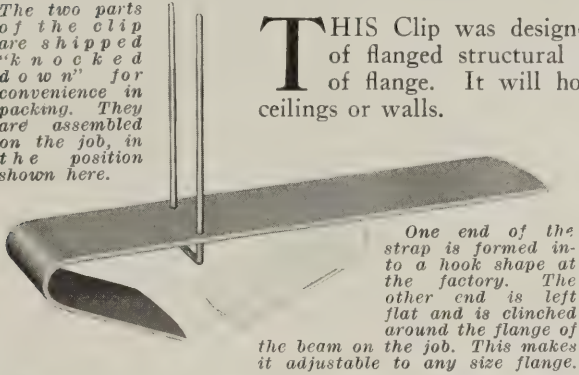
Milcor 3/8" Stay-Rib Metal Lath No. 2

TYPE	Weight per Square Yard Pounds	Size of Sheets Inches	Number of Sheets in Bundle	Square Yards In Bundle	Weight per Bundle Pounds
Cut from open-hearth steel sheets, painted.	2.75	24 x 96	9	16	44
	3.00	24 x 96	9	16	48
	3.40	24 x 96	9	16	54
	4.00	24 x 96	9	16	64
All our painted lath is heat-treated and reannealed after being cut and expanded, to give the metal longer life and greater strength.					
Cut from galvanized open-hearth steel sheets.	3.60	24 x 96	9	16	57

*Furnished in ARMCO Ingot Iron, in 3.50 lb. and 4.00 lb., Painted; also 400 lb. Galvanized.

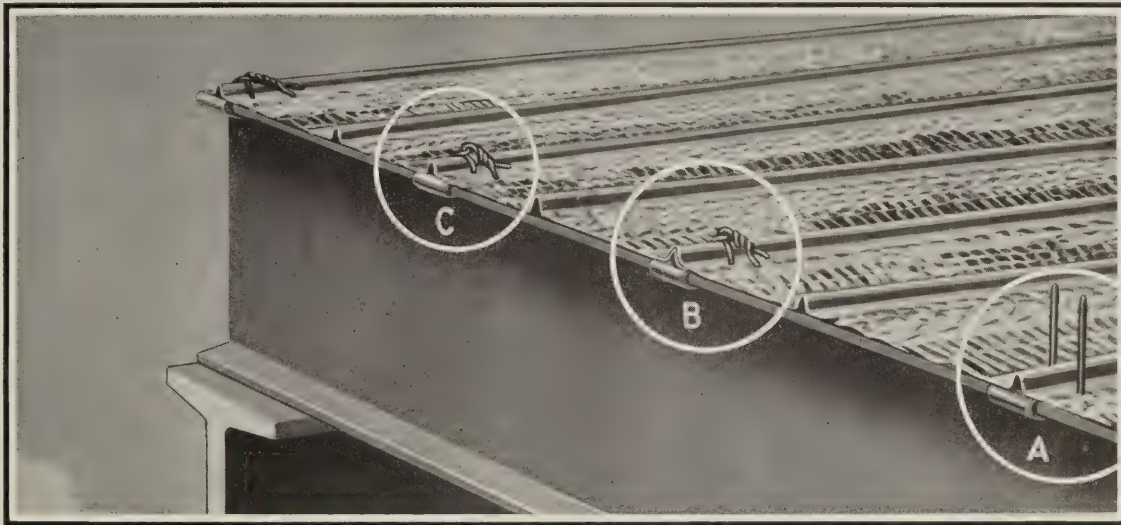
The Milcor Metal Lath Clip

The two parts of the clip are shipped "knocked down" for convenience in packing. They are assembled on the job, in the position shown here.



THIS Clip was designed for anchoring metal lath securely to any type of flanged structural supporting member. It is adjustable to any size of flange. It will hold the lath permanently at any angle, for floors, ceilings or walls.

The Milcor Clip is made in two parts: a flat metal strap, and a strong U-shaped tie-wire. The metal strap is made of No. 16 Ga. band iron, 1 inch wide, hook-shaped at one end, flat on the other. The hooked end is slipped over one flange of the I-beam or other supporting member and the flat end is then hammered or clinched around the opposite flange of the beam. The U-shaped tie-wire is made of No. 12 Ga. steel wire. Its two legs, 2½" high, project upward through holes punched in the strap.

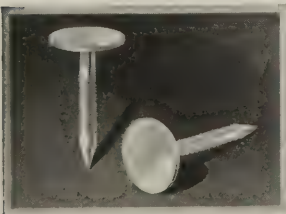


Where Milcor ¾" Stay-Rib No. 3 is used as reinforcement for flat concrete floors over I-Beams, this Clip provides a perfect means for securing the lath to the beams, as shown above.

"A" shows the Clip fitted into position with its legs protruding through the lath on either side of a rib. "B" and "C" show the legs twisted into a tight tie around the ribs. At "B" the overlapping of two ribs is shown.

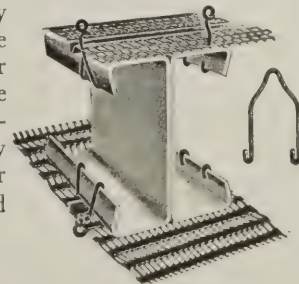
No. 12 Ga. 1" Galv., 5/8" Flat Headed Nails for Metal Lath

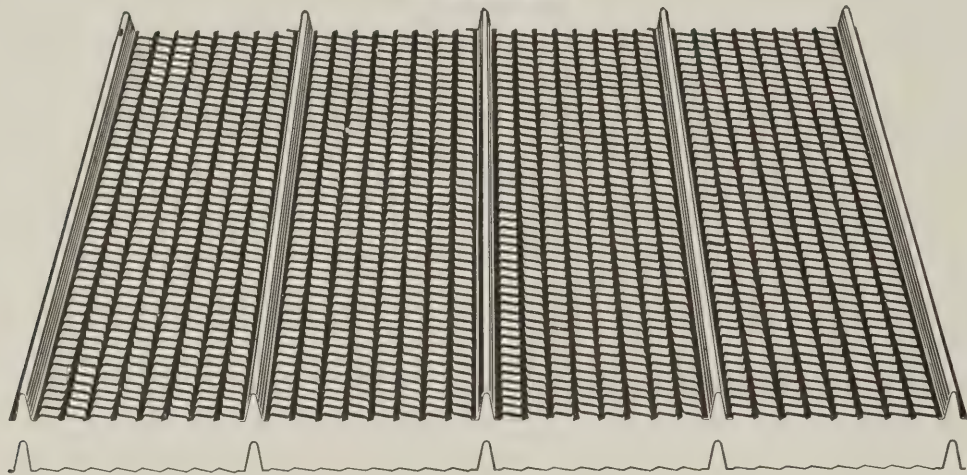
FOR fastening Milcor Stay-Rib No. 1 and Netmesh Metal Lath on wooden joists, we recommend the use of No. 12 Ga., 1-inch Galvanized Roofing Nails with broad 5/8-inch flat heads, which are ideal for fastening these two types of Milcor metal lath. Furnished in kegs, approximately 100 lbs. per keg.



No. 2 Stay-Rib Lath Clip for Metal Lumber

WHEREVER Stay-Rib Metal Lath is used in connection with Metal Lumber this special Lath Clip saves much time and labor, insures maximum safety and perfect workmanship. The prongs are merely hooked over the edge of the metal lumber and the tongue of the clip is then twisted until the lath is securely fastened. Weight per 1000 — 9 lbs. Packed in cartons of 1000.





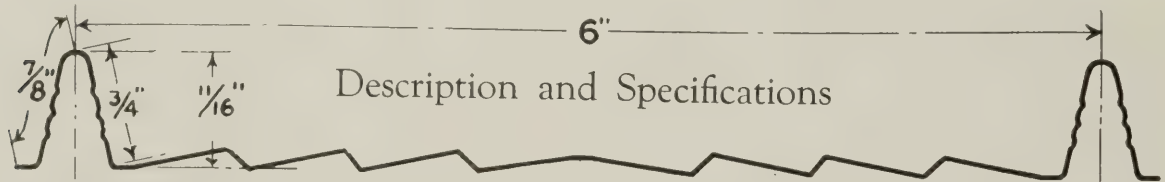
MILCOR 3/4-inch Stay-Rib Metal Lath No. 3

FOR many years, experts in reinforced concrete construction have approved the use of heavily ribbed metal lath as reinforcement for floors and roofs. They have endorsed thoroughly the fire-safety, load-carrying safety and practicability of this type of construction. The *method* is not new.

Encouraged by the success of Milcor Stay-Rib Metal Lath No. 1 and 3/8-inch Stay-Rib No. 2 in the field of Better Plastering, Milcor engineers made a thorough study of the requirements of metal lath as a reinforcing agent, and sensed the possibility of designing a superior type

of 3/4-inch rib lath for reinforced concrete construction. Backed by years of experience and the basic advantages of Stay-Rib design, the possibility became a reality in the form of Milcor 3/4-inch Stay-Rib No. 3.

This lath has proved its value in exhaustive tests and in practical use. The facts set forth briefly in the following pages and a careful examination of the product itself are certain to commend Milcor 3/4-inch Stay-Rib No. 3 to you as exceptionally meritorious. If you haven't examined this unusual reinforcing lath, be sure to send for free sample.



Description and Specifications

Specifications: The heavy, corrugated ribs of Milcor 3/4-inch Stay-Rib No. 3, (actually 7/8-inch high and spaced 6 inches on centers), are cold drawn (not stamped), and the connecting mesh is cut and expanded, from Steel, "Coppered Metal" or pure ARMCO Ingot Iron.

This lath is carried in stock PAINTED only, in the following weights of Steel and "Coppered Metal":

- No. 28 Ga. 0.46 lbs. per sq. ft.
- No. 26 Ga. 0.56 lbs. per sq. ft.
- No. 24 Ga. 0.74 lbs. per sq. ft.

Furnished in ARMCO Ingot Iron, Painted, in two weights only: No. 26 Ga. (0.56 lbs. per sq. ft.) and No. 24 Ga. (0.74 lbs. per sq. ft.).

It can be made to order from tight-coat galvanized sheets of Steel, "Coppered Metal," or ARMCO Ingot Iron. In this grade it is available only in No. 28 Ga. (0.53 lbs. per sq. ft.)

Cross Sectional Areas are as follows:

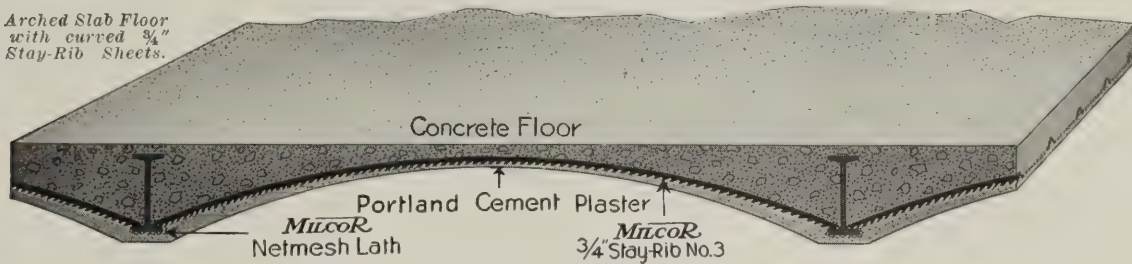
- No. 28 Ga. — .1235 sq. in. per ft. width
- No. 26 Ga. — .1482 sq. in. per ft. width
- No. 24 Ga. — .1977 sq. in. per ft. width

The covering width of each sheet of Milcor 3/4-inch Stay-Rib No. 3, is 24 inches. The practicability of this standard width is readily appreciated. Sheets are regularly furnished in lengths of 4, 5, 6, 7, 8, 9, 10, 11, or 12 feet. Sheets of intermediate length can be furnished, cut to exact lengths without extra charge for the cutting, but in such cases the cost of the wasted stock is included — for instance, sheets ordered 11 1/2 feet long will be cut to that size, but will be charged at the 12-foot rate. Specially designed shears which cut clean and square without damaging the ribs, can be purchased or rented from us. The shears may be mounted on skids or on trucks, for convenience in moving.

Instructions for ordering Curved Sheets on page 34.

MILCOR PRODUCTS

Arched Slab Floor
with curved $\frac{3}{4}$ "
Stay-Rib Sheets.



Description: While Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3 was designed particularly for use as a fireproofing reinforcement for concrete floors and roofs, it is also practical in solid partition work, curtain-wall construction, and other fireproofing work, where because of the rigidity and strength of its ribs and mesh, it can be used without supporting studs or channels—in other words, its integral qualities are those of metal lath and studding combined, for upright partition work. Some of the many uses to which Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3 is particularly well adapted, are outlined on pages 35 to 38.

The Milcor process of forming the heavy ribs is important. They are cold-drawn—not stamped—and each rib is kept precisely straight and true; absolutely uniform in shape. The sides of each rib are corrugated and V-shaped, at an angle that insures maximum rigidity.

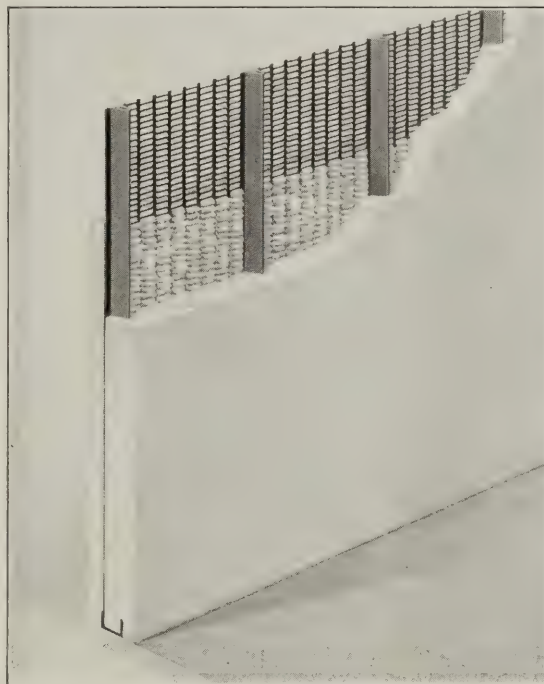
The method of cutting and expanding the metal between ribs provides exceptional strength

at the juncture of the mesh with the ribs, and the design of the mesh, with intermediate “stays” running parallel to the ribs between each two rows of cross strands, produces that remarkable mesh-strength between the ribs which is one of the outstanding characteristics of Milcor $\frac{3}{4}$ -inch Stay Rib No. 3.

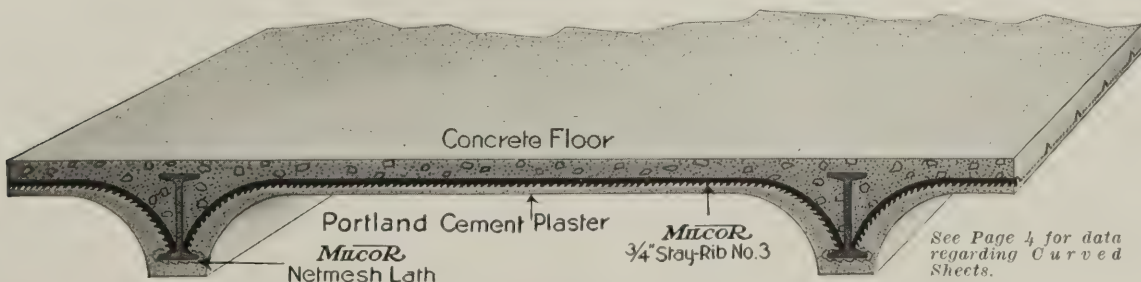
Furthermore, the shape of the openings and the position of the strands in the mesh offer an ideal condition for a permanent bond of the concrete with this reinforcing material. The importance of this bond will be shown further along in this treatise. And although the concrete is enabled to flow readily around these strands, Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3 permits practically no loss of concrete during the pouring process.

Another practical advantage of this modern reinforcing lath is the fact that workmen can handle it without danger of cutting or scratching their hands.

The longitudinal rigidity of Stay-Rib, due to the design of the mesh and the combination of



Used for solid partition, with ribs perpendicular to floor; no upright channels required. (See also page 17)





Milcor Shears for 3/4-inch Stay-Rib cut the lath cleanly, without damaging the ribs. Shears may be rented or purchased.

intermediate "stays" and extra-sturdy ribs, is superior to that of any other type of metal lath reinforcing material. This superior rigidity permits greater strength with fewer ribs—in other words, with ribs spaced farther apart—which offers structural advantages as explained on page 44.

While attaining this desirable rigidity the

Instructions for Ordering Curved Sheets of Milcor 3/4-inch Stay Rib No. 3

THE value of curved sheets of Milcor 3/4-inch Stay-Rib Lath No. 3, acting as they do in the dual-capacity of curved form and reinforcement for concrete, is readily appreciated by every structural engineer and contrac-

tor who has experienced the high cost of other types of curved or arched construction.

This metal lath can be curved—ribs to the outside only—to any radius of 12 inches or over in the following ways: Curved to a complete

long way of the ribs, Stay-Rib design permits bending the other way which makes special forming possible where required, without damage to the strands.

All Milcor painted lath is heat-treated and re-annealed after being cut and expanded, which gives the metal longer life and greater strength. This heat-treating process is important. The electrons, or steel and iron molecules, become displaced through the strain of cutting and expanding the solid sheet metal. Heat-treating relieves the stress and brings the electrons back to their original positions. The result is greater toughness and longer life for the metal. Milcor Special Elastic Paint adds further protection.

Bundling for Shipment: Milcor 3/4-inch Stay-Rib No. 3 sheets are prepared for shipment in bundles, with ribs of pairs of sheets reversed, wired six sheets to the bundle. Reversing the sheets is better than nesting the ribs.

Milcor 3/4-inch Stay-Rib No. 3 may be wired, clipped, tied, wedged, or fastened in any approved manner, according to the special type of beams, steel lumber or patented joists that may be used.

Careful tying is always safe, but other patented clips, etc., are also very efficient when used with the type of structural members for which they were designed.

The Milcor Rib Lath Clip illustrated on Page 31 is recommended particularly for safety, convenience and speed of erection where steel I-Beam construction is used.

The Milcor Rib Lath Clip illustrated on Page 31 is recommended particularly for safety, convenience and speed of erection where steel I-Beam construction is used.



Fig. A—Sheets may be curved to form complete circle for various uses.

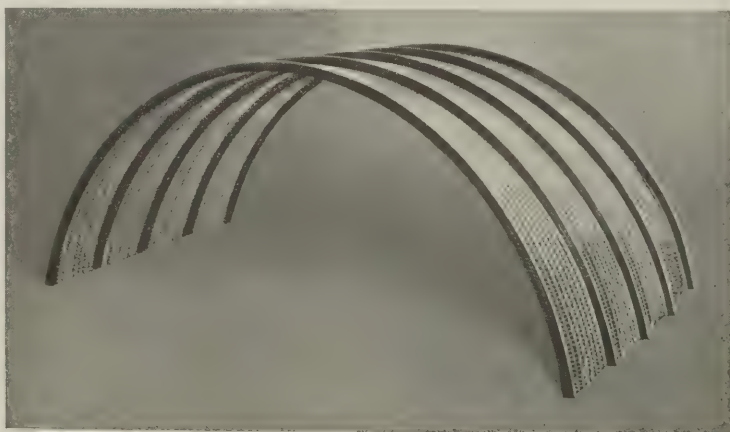


Fig. B—Lath Sheets may be curved to any radius, or curved at ends and flat in center (as shown on page 35), with ribs to the outside only.

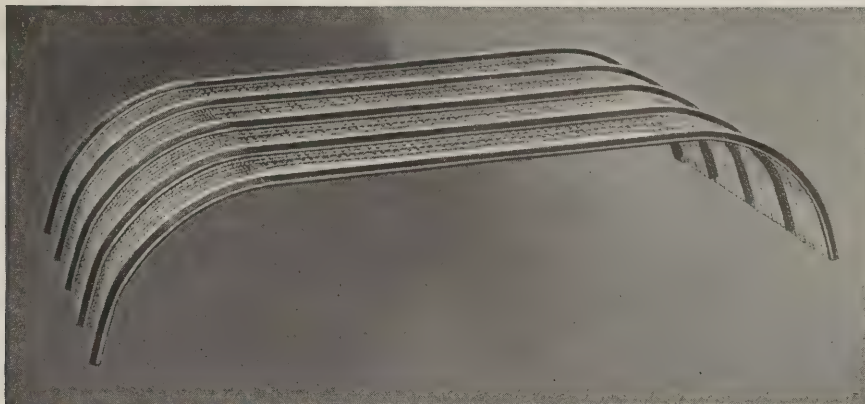


Fig. C—Curved at ends, flat in center.

circumference as shown in Fig. A; curved to a wide radius to form an arch of specified height and width as shown in Fig. B; curved at either one or both ends, with center flat, as shown in Fig. C.

The sheets may be ordered curved at our factory at slight additional cost. When ordering

sheets to be curved by us, be sure to give exact width of the arch and the height of the rise, as well as the radius to which sheets are to be curved. If possible it is well to submit detailed drawings and complete description so our engineering department will have opportunity to co-operate to the fullest extent.

Principal Uses of Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3

THE chief purpose for which Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3 is designed, is its use in concrete slab construction for floors and roofs, where it serves not only as a form upon which the wet concrete is poured, but also acts as a highly efficient expanded metal reinforcement for the concrete.

In this capacity it is used most extensively with steel joist construction or metal lumber. In floor construction the ability of Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3 to act as a form to hold the wet concrete is of greatest importance, while in long span roof slab construction its superior reinforcing qualities as well as its qualities which make it ideal as a form for the concrete, commend this modern Milcor product for all conditions where this type of construction is desired. The shape and position of the metal mesh and the elimination of unnecessary solid ribs, are important factors in accomplishing the particularly strong bond which results between the concrete and $\frac{3}{4}$ -inch Stay-Rib No. 3. The exceptional strength of this bond is vital to the safety of this type of construction.

As shown on pages 32 and 33, this lath may be used in solid slab construction for reinforced

concrete floors or roofs, or may be used curved to a single arc, or curved at each end but flat in the center, for arched or bridge-type floor construction. It is recommended that wherever curved sheets are to be used, the curving be done at the factory, where specifications will be precisely adhered to. (See instructions for ordering on page 34.)

There are many adaptations of the above mentioned uses, and in addition, a wide variety of other purposes to which this product is ideally suited.

Not only does Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3 metal lath meet every requirement most efficiently and economically for flat-type reinforced concrete roofs, but it is also the finest product ever offered for pitched roofs, saw-tooth and monitor-type roofs (with walls and roof both constructed by this approved reinforced concrete method).

This lath may be used as a reinforcing material for the concrete base of Terrazzo, Tile, or wood finished floors—over wood joists or wood beams, over steel I-beams or any of the newer types of fabricated steel beams, metal lumber or patented bar joists and trusses.

(Continued on next page.)

Principal Uses of Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3

(Continued)

For monolithic concrete wall construction this lath is extremely practical because its heavy ribs provide sufficient rigidity and stiffness to permit elimination of stiffening channels; and no forms are needed, since the concrete can be spread on first from one side and then from the other, to the desired thickness, the process being the same for solid partitions, with the ribs of the lath perpendicular to the floor and anchored at floor and ceiling with runner channels or light angle irons.

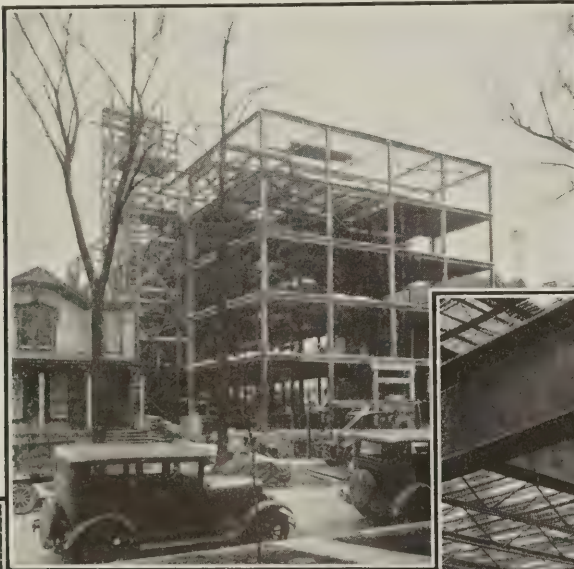
While reinforced concrete floor and roof construction constitute the chief uses of Milcor $\frac{3}{4}$ -

inch Stay-Rib No. 3, these are only two of its many adaptations in reinforcing and fireproofing work. Not all of its adaptations involve the use of concrete, either, for this lath serves as an admirable plaster base because of its superior stiffness, precisely true lines and excellent gripping or bonding qualities.

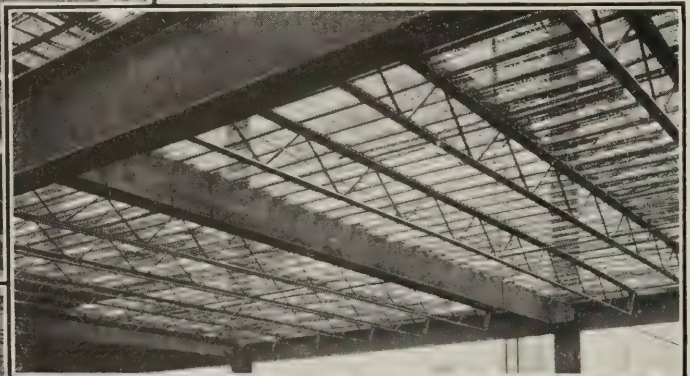
For plastering unusually long spans between widely spaced supporting members, it is particularly practical.

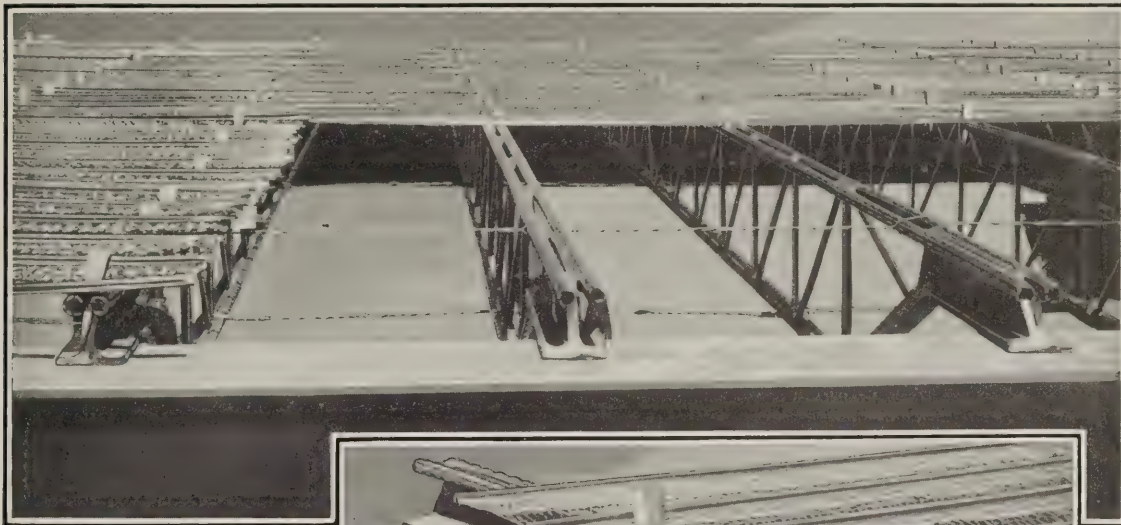
It is ideal for solid partition work, as shown on page 33, because of its heavy ribs, which make

(Continued on next page.)



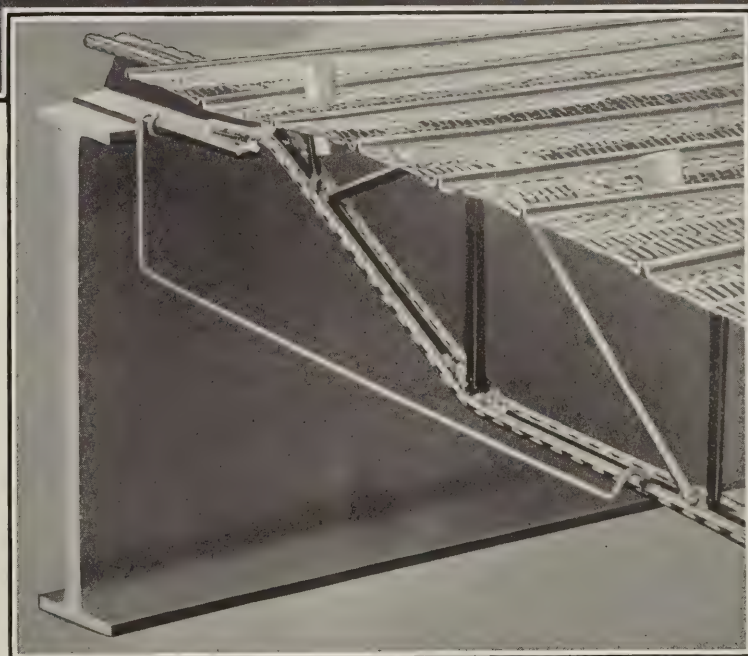
The simplicity and clean-cut efficiency of this type of construction are emphasized by these views of an Apartment Building in Milwaukee. Photo at left shows five completed floors, with roof ready for pouring. Center photo shows close-up of Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3 Lath in position before pouring concrete. Photo at bottom shows under side of floor after pouring. Notice the perfect bond between lath and concrete and the precisely straight riblines, indicating no sagging of lath from weight of wet concrete.





A popular type of bar joist—with Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3 fastened down with pegs which are wedged in between the two bars of the joists. This is a simple, safe, economical method of fastening, made possible by the unique design of this bar joist.

The close-up view at right shows the construction at the end of this bar joist.



Principal Uses

(Continued)

possible the elimination of upright supporting channels or studs. When used in this manner, the ribs are placed perpendicular to the floor.

A runner channel or angle iron is usually used to insure a true partition line at the ceiling and an angle iron along the floor to keep that line true. Bracing is not required while plaster is being applied, unless the wall is unusually high.

For curtain-wall construction on industrial buildings this lath is also ideal—Portland Cement Plaster must be used for the exterior and interior surfaces.

Because the use of forms or stiffening channels is eliminated and much material is saved when Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3 is used for 2-inch monolithic concrete non-bearing walls, partitions, sidings, curtain walls, etc., such construction costs about half the price of brick—in fact, it costs less than any other type of fireproof, permanent construction—and at the same time

a gain of considerable floor space is accomplished as compared with the more bulky types of construction.

For suspended ceilings, Milcor $\frac{3}{8}$ -inch Stay-Rib No. 2 is recommended, although Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3 may be used. For hollow-wall construction, Milcor $\frac{3}{8}$ -inch Stay-Rib No. 2, or Milcor Stay-Rib Lath No. 1, is recommended. The ribs of all Stay-Rib Lath project the lath far enough away from the studs to make the use of furring strips unnecessary. Hollow-wall partitions of this type possess superior sound-proof qualities in addition to their other desirable qualities. Exterior stucco work on residences may be done on Milcor Netmesh (diamond expanded) Metal Lath, Stay-Rib Lath No. 1, or $\frac{3}{8}$ -inch Stay-Rib No. 2.

(Continued on next page.)

Principal Uses of Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3

(Continued)

Summarizing some of the uses of Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3, the following list will suggest many other purposes to which this product is ideally suited:

For floors, roofs, walls and partitions of factories, warehouses, foundries, machine shops, rolling mills, car barns, round houses, power plants, grain elevators, etc. Also for office buildings, stores and public buildings, residences, garages, small buildings, etc. Also for Motion Picture booths, storage bins, tool rooms, etc. For elevator shafts, dumb waiter shafts, wiring and heating system shafts and channels, etc.

For railings, steps, seat-risers, stairways.
For fences and retaining walls.
For farm buildings, silos, cisterns, culverts.
For chimneys, conduits, flumes, sewers, water mains, air ducts, tunnels, etc.
For tanks, reservoirs, disposal tanks, vats, water troughs, etc.
For bridges, roadways, walks, etc.
For fireproofing steel beams, load-carrying steel columns, etc.
For false beams, cornices and heavy ornamental plastering.
For galleries, booths, hand-ball courts, etc.

Engineering Data Based on Results of Tests to Destruction

THIS is not theoretical data—the Table of Safe Loads on page 39 is the result of “breakdown” tests, or tests to destruction, made with due regard for field conditions, based on approved engineering practice with relation to weights of lath and steel beams, application of lath, and mixing, pouring and curing the concrete. These tests were designed to cover a variety of actual field conditions. In each test data was secured to indicate the strength of Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3 as a formwork for carrying the wet concrete as well as a reinforcement for the concrete after the slabs were cured.

The tests were made over a period extending from July 19, 1926 to April 2, 1927. In

each test the steel beam supports were designed to carry the load of the floor slab and a live load sufficient to include the full strength of the construction. For these tests standard structural principles of design were employed instead of adhering to the Design Tables furnished by manufacturers of patented steel lumber or bar joists.

In actual use the efficiency of Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3 with steel beams, patented steel lumber of various types, and with many kinds of patented bar joists, has been thoroughly demonstrated. The illustrations on pages 36 and 37 show this lath in use in connection with bar joists.

Weights of Lath for Carrying Wet Concrete Over Various Spans

Gauge of Milcor $\frac{3}{4}$ " Stay-Rib No. 3.	Weight of Lath per Sq. Ft.	Allowable Spans for Wet Concrete Poured to Thickness Indicated:—				
		2" Slab	2 $\frac{1}{2}$ " Slab	3" Slab	3 $\frac{1}{2}$ " Slab	4" Slab
28 Ga.	0.46 lb.	3 ft. 3 in.	3 ft.	2 ft. 9 in.	2 ft. 6 in.	2 ft. 3 in.
26 Ga.	0.56 lb.	3 ft. 6 in.	3 ft. 3 in.	3 ft.	2 ft. 9 in.	2 ft. 6 in.
24 Ga.	0.74 lb.	4 ft.	3 ft. 9 in.	3 ft. 3 in.	3 ft.	2 ft. 9 in.

When longer spans than those given above are required, temporary supports should be used to maintain these maximum spacings.

Famous Hotels in Which Milcor Products Are Embodied



Benjamin Franklin Hotel
Philadelphia, Pa.



Baker Hotel
Dallas, Texas



Palmer House, Chicago
One of the World's
Largest Hotels



Roosevelt Hotel
New York, N. Y.

TABLE OF TOTAL SAFE LOADS FOR CONCRETE SLABS REINFORCED WITH 3/4" STAY-RIB NO. 3

Assumed Conditions:

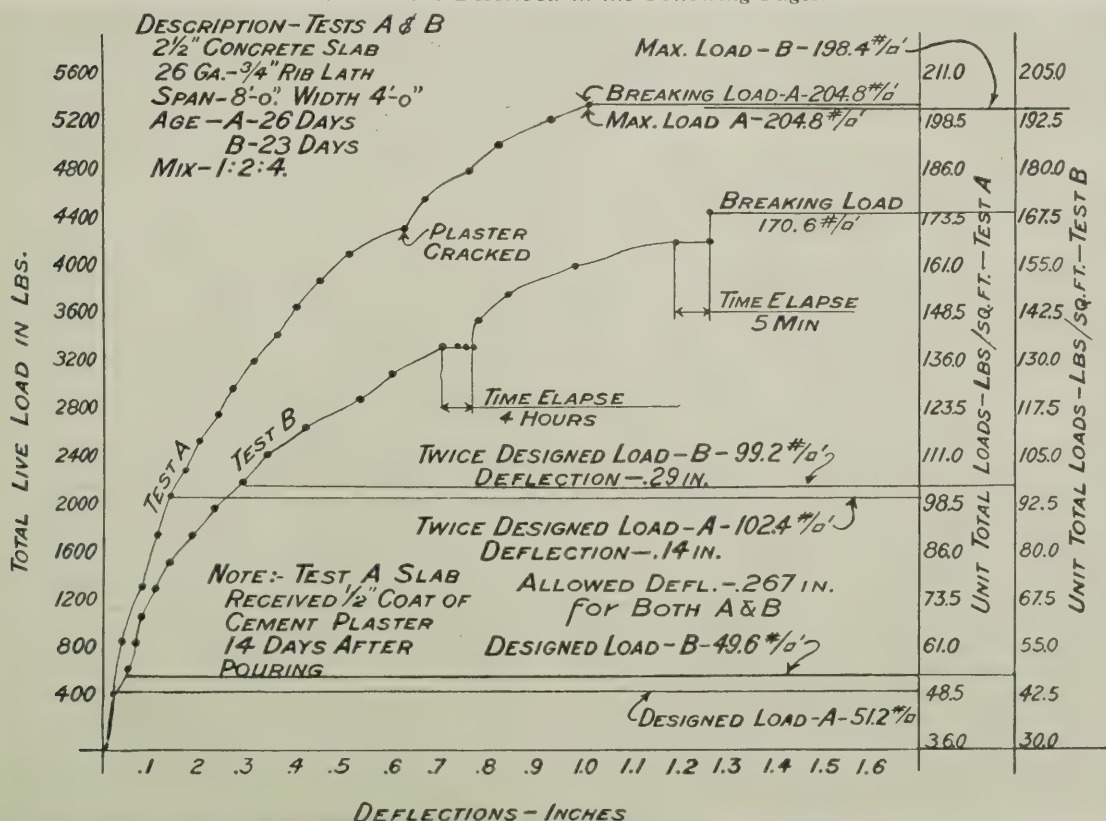
Loads given are Live Loads plus Dead Loads.
Stress in Steel — 16000 lbs. per sq. in.
Stress in concrete (fc) variable as per Table —
given in pounds per sq. in.
Ratio of Modulus of Elasticity of Steel (Es) to

Modulus of Elasticity of Concrete (Ec) = $n = 15$.
Distance of Center of Gravity of Lath above Bot-
tom of Sheet — .163 of an inch.
Resisting Moment (R. M.) — Given in Inch Pounds
Per Foot Width.
WL
Table Based on moment of —
10

Thickness of Concrete	Weight of Slab, per Sq. ft.	Weight of Slab with 1/2" Portland Cement Plaster on Under Side	Gauge of Lath	Weight of Lath, per Sq. Foot	Resisting Moment (R. M.) inch lbs. per foot of width	Stress in Con- crete in lbs. per sq. in. (fc)	TOTAL SAFE LOADS in Pounds per Square Foot for Spans as Indicated in Feet										
							3'	4'	5'	6'	7'	8'	9'	10'	11'		
2"	24 lbs.	30 lbs.	No. 28 Ga.	0.46 lbs.	3230	540	299	168	108	75	55						
2"	24 lbs.	30 lbs.	No. 26 Ga.	.56 lbs.	3840	600	355	200	128	89	65	50					
2"	24 lbs.	30 lbs.	No. 24 Ga.	.74 lbs.	5050	690	468	263	168	117	86	66	52				
2 1/2"	30 lbs.	36 lbs.	No. 28 Ga.	.46 lbs.	4150	460	384	216	138	96	71	54	43				
2 1/2"	30 lbs.	36 lbs.	No. 26 Ga.	.56 lbs.	4940	520	458	258	165	114	84	64	51				
2 1/2"	30 lbs.	36 lbs.	No. 24 Ga.	.74 lbs.	6490	620		338	216	150	110	85	67	54			
3"	36 lbs.	42 lbs.	No. 28 Ga.	.46 lbs.	5084	410	470	265	170	118	87	66	52				
3"	36 lbs.	42 lbs.	No. 26 Ga.	.56 lbs.	6049	460	560	315	202	140	103	79	62	50			
3"	36 lbs.	42 lbs.	No. 24 Ga.	.74 lbs.	7960	550		415	266	184	135	104	82	66	55		
3 1/2"	42 lbs.	48 lbs.	No. 28 Ga.	.46 lbs.	6000	380	555	312	200	139	102	78	62				
3 1/2"	42 lbs.	48 lbs.	No. 26 Ga.	.56 lbs.	7160	420		373	238	165	122	93	74	60			
3 1/2"	42 lbs.	48 lbs.	No. 24 Ga.	.74 lbs.	9440	490		490	315	218	161	123	97	78	65		
4"	48 lbs.	54 lbs.	No. 28 Ga.	.46 lbs.	6960	350		363	232	161	118	91	72	58			
4"	48 lbs.	54 lbs.	No. 26 Ga.	.56 lbs.	8289	390		432	276	192	141	108	85	69	57		
4"	48 lbs.	54 lbs.	No. 24 Ga.	.74 lbs.	10920	460		568	364	252	186	142	112	91	75		

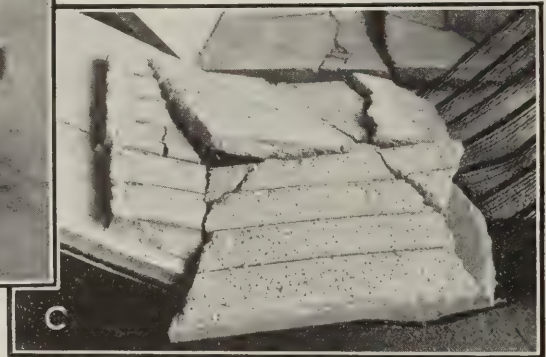
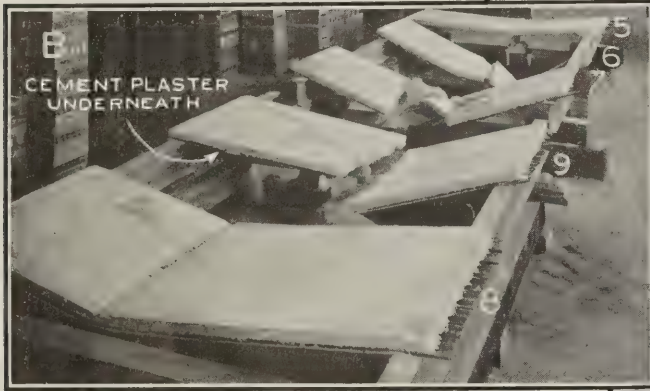
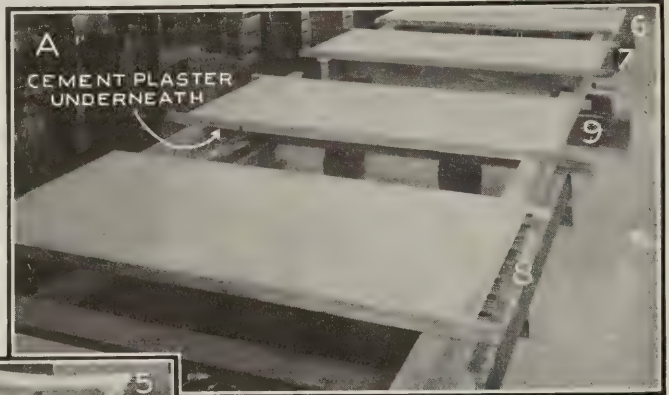
Note:—This table should not be used unless under side of slab is given a coat of Portland Cement Plaster 1/2-inch thick.

Graphs Showing Result of Tests Which Were Made to Prove the Above Table.
The Tests are Described in the Following Pages.



Description of the Tests That Proved the Safe Load Tables

TO obtain comparative values of various types of high rib metal lath, designed with different shapes of mesh and with different spacings between ribs, these tests were made on four well-known brands of $\frac{3}{4}$ -inch rib lath, one of which was Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3. The conditions governing the tests on each different brand of lath were kept exactly the same.



For instance, Slab No. 5 was constructed over a well-known brand of 26 Ga. $\frac{3}{4}$ -inch rib lath, the ribs of which are spaced 4.8 inches apart; Slab No. 6 was poured on another brand of 26 Ga. $\frac{3}{4}$ -inch rib lath, the ribs of which are spaced $3\frac{5}{8}$ inches apart; Slab No. 7 was poured on still another type of 26 Ga. $\frac{3}{4}$ -inch rib lath, the ribs of which are spaced 4 inches apart; while Slabs No. 8 and No. 9 were poured on Milcor $\frac{3}{4}$ -inch

Stay-Rib No. 3, the ribs of which are spaced 6 inches apart.

The five Slabs were poured on March 8, 1927. The tests were made on March 30, 31 and April 2, 1927, thus allowing approximately three

(Continued on next page.)

Detailed Explanation of the photos above:

Photo "A" shows four of the five slabs of concrete poured on various types of $\frac{3}{4}$ -inch rib lath, before the loads were placed on them. All temporary supports had been removed. A sand box was constructed around each slab to permit sand to be loaded evenly all over the slab.

Photo "B" shows all of the five slabs after breaking under their respective loads of sand. The sand had been cleared away sufficiently to show the character of the breaks. On all slabs except No. 7 and No. 9, the lath remained intact and pulled away from the concrete to cause failure. The slabs did not pull out or cut the tie wires with which the lath was fastened to the structural steel beams, indicating that the slabs did not pull off their bearings when loaded. Slab No. 6 fell the entire distance to the floor on failure and that caused one end to pull off the support.

Photo "C" shows what happened when an attempt was made to turn over a slab without Portland cement plastering applied on the under side, after it had failed under a breakdown test. The smoothness of the concrete where it had formed over the ribs of the lath emphasizes the fact that little or no bond is obtained at the ribs. The slab did not fail until the bond broke between the concrete and the mesh of the lath. At that point the concrete separated from the ribs. Part of the value of Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3 lies in the fact that there are fewer ribs and a better bond is provided for the concrete over a wider surface of the lath. Portland Cement plaster applied on the under side to a thickness of about $\frac{1}{2}$ -inch, seals the bond of the concrete with the lath and greatly increases the strength of the slab. This slab was not plastered on the under side with Portland cement plaster.



Photo "D" shows a remarkable view of Slab No. 9 just before the rupture occurred. Notice the line of deflection just under the sand box carrying the load. As explained in connection with the Graphs of Results of these tests, on page 9, this slab held a load four times as great as the Designed Load, for one minute and forty seconds before failing.

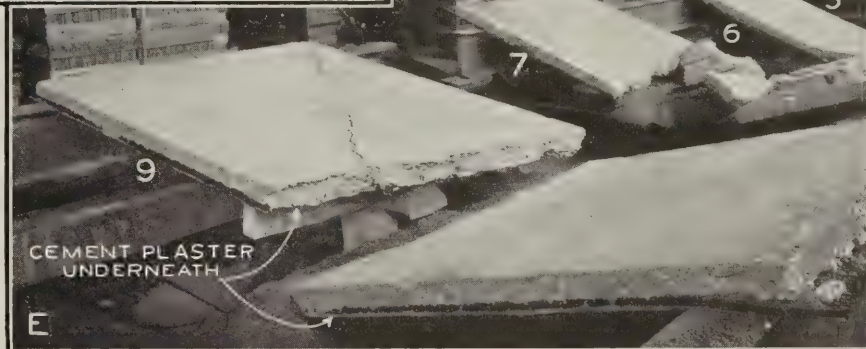


Photo "E" shows Slab No. 9 immediately after it had failed in this test-to-destruction, with the sand box and sand removed. Notice carefully the perfect bond that remained between the Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3 lath and the concrete after failure, as compared with all the other results. Notice also that the position of the crack was almost exactly at midspan and that the break was clean. Close examination of the picture reveals the layer of Portland cement plaster underneath.

This perfect bond and the clean break at midspan under a load four times as great as the Designed Load is significant of the super-safety of this type of construction with Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3.

weeks for the curing of the concrete. The mix for the concrete on all Slabs was 1:2:4.

All Slabs were poured to a thickness of $2\frac{1}{2}$ inches. The span of each Slab was 8 feet; the width, 4 feet. Slab No. 9 received a coat of Portland Cement Plaster, $\frac{1}{2}$ inch thick, on the

under side, two weeks after the Slab had been poured. Temporary supports were used for all Slabs to hold the lath in place while the concrete was being poured. These supports were removed just before the Slabs were tested with loads. Sand was used to insure even loading of the Slabs.

Description of Action and Conclusions

SLAB No. 5 was allowed to stand for four hours with a superimposed load of 3375 lbs., or about 135.5 lbs. per sq. ft., including the weight of the concrete, before adding more weight to the point of destruction. Deflection continued for a short time and then the effect of that load caused no further change. It was then apparent that the Slab would not fail without additional load, which was then added, until failure occurred at a loading of approximately $3\frac{1}{2}$ times the Designed Load. Failure apparently was due to the fact that the lath pulled away from the concrete when the deflection became excessive.

While the capacity of this slab tested considerably greater than twice the Designed Load, it failed to take the theoretical maximum load of four times the Designed Load. In fact, none of the Test Slabs except Slab No. 9 were able to take four times the Designed Load.

The action of Slab No. 6 and the reason for failure were practically the same as described

above for Slab No. 5.

Slab No. 7 seemed to form a good mechanical bond between the lath and the concrete and the Slab took more than twice the Designed Load but considerably less than the theoretical maximum load. Deflections on this Slab were considerably greater. The reason for failure was not due to the breaking away of the lath from the concrete, but because of failure of the lath itself.

Slab No. 8 showed action similar to Slabs No. 5 and No. 6. The reason for failure was the separation of the lath from the concrete under a load causing extreme deflection and following that separation from the lath, the concrete slab failed.

Slab No. 9 acted in accordance with the accepted laws governing the design of reinforced concrete. This Slab took a Breaking Load of exactly four times the Designed Load and its deflection when loaded with twice the Designed Load, was about half the allowable. (Refer to Graph of Test A on page 39.) No failure occurred in the bond between lath and concrete. The break took place at midspan, apparently because of simultaneous failure of both the lath and the concrete.

Tests of Reinforced Concrete Floor Construction Over Steel Beams

THESE tests were conducted to determine the carrying capacity of the concrete slab itself, reinforced with Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3, as well as to determine the strength or full capacity of the complete construction of steel beams and reinforced concrete slab.

The slabs were designed to accommodate only the strength of the beams. Before loading the slabs, a support at midspan was placed under the

beams. Then the slabs were loaded to the full capacity of the beams. Thus the concrete slab, reinforced with this lath, was tested as an individual part of the construction. Then the support was removed and the complete construction was tested further.

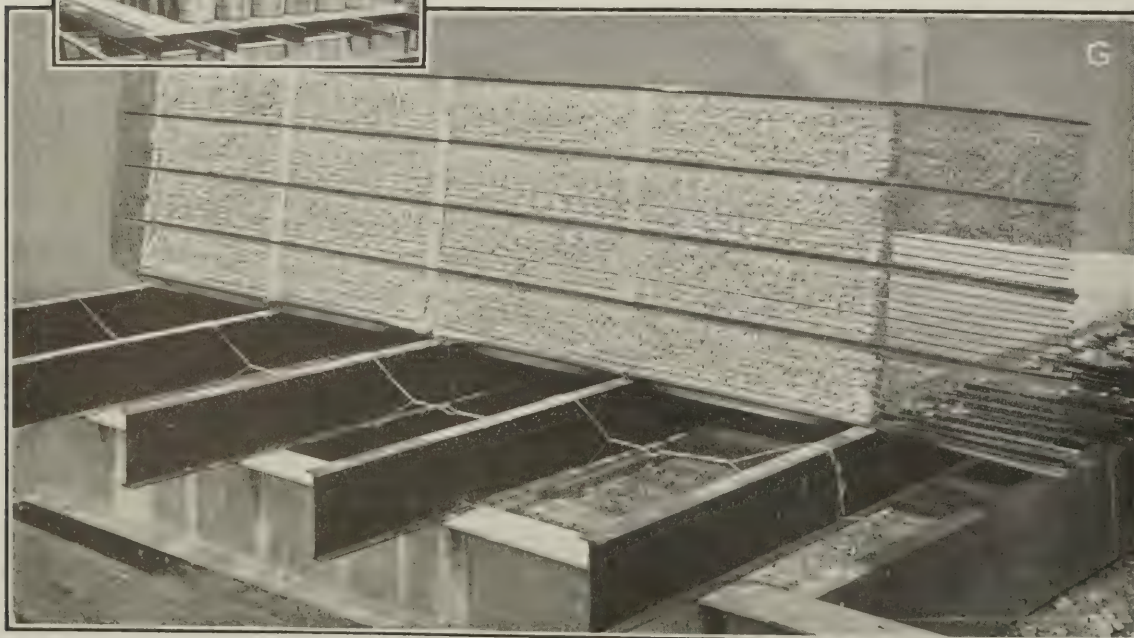
With the support removed, the beams were stressed to the limit; but with the support in position under the beams, the reinforced concrete slabs remained unaffected under the maxi-

(Continued on next page.)



Photo "F" shows a load of 26,000 lbs. or 650 lbs. per sq. ft. on a 2-inch concrete slab (1:2:4 mix), reinforced with 28 Ga. Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3, on 6-inch steel beams, spaced 30 inches on centers, with a span of 8 feet. This load included the weight of the slab itself as well as the nail kegs and the men. The Designed Load of this Slab was 150 lbs. per sq. ft. Even with the excessive load of 650 lbs. per sq. ft., no cracks developed. This clearly demonstrates the excess of safety assured by this type of construction on floors over steel lumber or bar joists.

Photo "G" offers interesting proof of the perfect condition of the slab after removing the load and raising part of the slab to show the under side. Notice the tight bond between the concrete and the lath, the perfect condition of the slab, and the rigidity of the lath as indicated by the lack of any sag whatever from the pouring of the wet concrete on the mesh. You will notice also that there was practically no loss of concrete. The mesh of Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3 does not permit the concrete to drip through. From every standpoint this lath is ideal.



MILCOR PRODUCTS

Photo "H" shows a load of 56,948 lbs., or 527 lbs. per sq. ft., on a 3-inch concrete slab (1:2:4 mix), reinforced with 24 Ga. Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3, on 12-inch steel beams, spaced 36 inches on centers, with a span of 18 feet. The load of pig iron was concentrated on an area 6 ft. by 18 ft. The total load, including weight of slab, was 563 lbs. per sq. ft. The Designed Load, 123 lbs. per sq. ft.

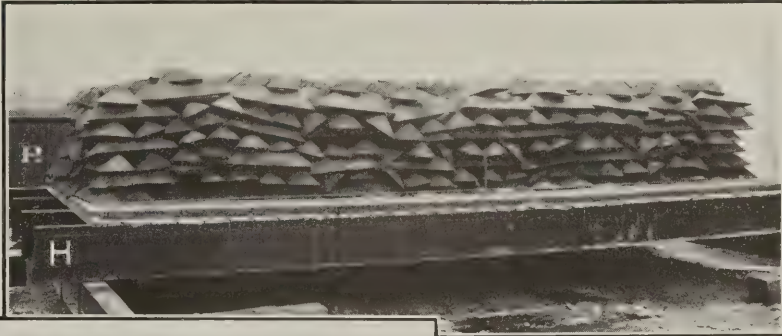


Photo "I" shows the same load in place as in Photo "H," with the additional weight of ten men.

Photo "J" shows the same load as in Photo "H," viewed from the end, so as to show the uniform load directly on the slab. This view shows that the load produced no effect on the slab.

Photos I and J were taken with center support in place under beams. Photo H shows center support removed, which caused a permanent sag of $1\frac{1}{8}$ inches in center.

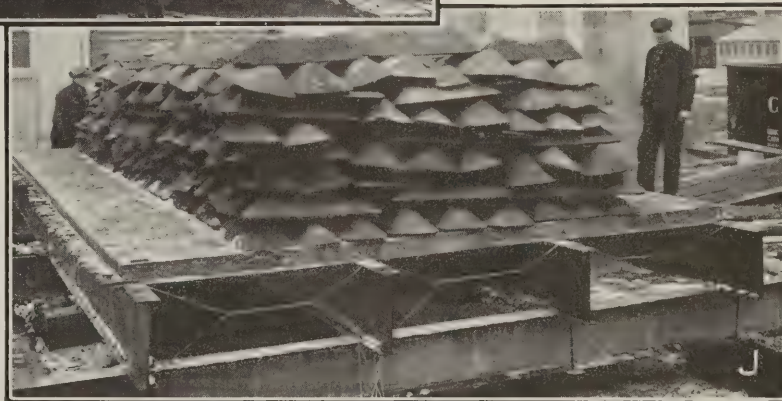


mum load of the steel beams (four times the designed load), which is the governing load for this construction.

In other words, the tests proved that the critical part of the design, as far as carrying capacity of the floor is concerned, is the design of the steel beams or bar joist material. The reinforced concrete floor slab itself will not fail from direct load unless the steel beams or bar joist construction fails.

In view of the fact that manufacturers of the various types of steel beams and bar joists have been very conscientious in keeping their products well up to the standards for which they are designed, liberally safe construction is assured whenever their Design Tables are adhered to.

The tests further proved that Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3 possesses ideal qualities of stiffness, mesh and bond—it carries the wet concrete without sagging; the mesh is close enough to prevent loss or dripping of concrete; and the mesh is open enough to



allow a perfect bond between the lath and the concrete. The bond is made still stronger over the entire area of the floor, by reason of the fact that there are fewer ribs in Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3 than in other types of high rib lath.

While this type of rib lath is of more value here as a framework for the concrete than it is essential as a reinforcing agent, its reinforcing value must not be depreciated. It is the reinforcing quality of this lath that gives life to this type of floor construction, because safety under such tensile stresses and temperature stresses as may develop, is dependent on the presence of this lath embedded in the concrete.

Conclusions from Tests of Floor Construction

FROM the series of tests briefly described on pages 42, 43 and 44, it was very definitely determined that with Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3 used as reinforcement for concrete slabs, the governing factor in the design of the floor system was the design of the steel beam portion, in all cases. Wherever failure occurred from excessive loading, the failure was in the steel beams and not in the slabs of concrete and lath. In most cases where evenly distributed loads, calculated to cause complete wrecking, were used, the slabs remained intact. They not only remained intact, but showed no signs of having been stressed unnaturally.

These tests indicated the importance of using

a weight of lath stiff enough to carry the wet concrete. As a result of these observations, the Tables of Allowable Spans for various gauges of Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3 carrying wet concrete were established, as given on page 38.

Results obtained also showed that each 24-inch width of lath must be securely tied to the supports at least three times. This means tying or clipping once over the center rib of the sheet and once over each outside rib where it overlaps the adjoining sheet.

It was also concluded from these tests, that the thickness of the concrete slab reinforced with this lath should never be less than 2 inches.

General Conclusions from Long Span Roof Slab Tests

PARTICULAR emphasis should be placed on the fact that if reinforced concrete slab construction be made to agree in capacity with the principles governing reinforced concrete, the mechanical bond between the lath and the concrete *must* be sealed by a protective covering of *Portland cement plaster*. This must not be looked upon merely as a *recommendation*—it is *vital* to correct construction.

These and other tests not described here, also emphasize the fact that regardless of the cross-sectional area of the lath, or of the spacing of the ribs, or of the gauge of the lath, or of the thickness of the concrete, or of the conditions under which the slab is built, the *real governing factor* is the *bond* between the lath and the concrete.

These tests further show that the requirement for back-plastering on the underside of the slab applies particularly in cases of roof construction, because of the long spans of the slabs. Floors over steel lumber or bar joists have spans so short in proportion to the loads that can be

carried by this structural system, that there is practically no possibility of affecting the bond in the slab, regardless of excess loading. It is not essential, therefore, to back-plaster the underside of the slab on short-span steel lumber or bar joist construction, but everywhere else this back-plastering with Portland cement plaster is vital if you expect to adhere to engineering principles for reinforced concrete.

On long span roof construction it is much more economical to plaster the underside of the slab with Portland cement plaster than to increase the size of the slab or shorten the spans to the extent required for safety.

In none of these tests did the spacing of ribs have any bearing on the capacity of the lath to carry wet concrete. Regardless of ribs, each type of lath that was tested acted in accordance with the limitations prescribed by the Table on page 38, which indicates the spans over which each gauge of lath will carry various thicknesses of wet concrete.

Firesafety

Numerous tests and actual experience have thoroughly established the firesafety of this type of metal lath construction, with plaster or concrete, for partitions or floors, elevator shafts, stairways, etc.—in fact, wherever the highest degree of fireproof construction is demanded. Not

only does this type of construction with Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3 offer real firesafety, which of course is the most important consideration, but it is also economical—in fact, more economical than any other type of truly firesafe, permanent construction.

Summary of Conclusions

HERE is a summary of the conclusions drawn from results of tests which were made to determine *strength* and *action* of Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3 Lath, as a Form for wet concrete and a Reinforcing Agent for Concrete Slabs:

1. When used with concrete for slabs over metal lumber, tests proved that the strength of the reinforced concrete slabs was far in excess of that of the steel beams. Therefore, for usual conditions and standard spacings of metal lumber, the design of the steel beam construction governs the strength of the entire floor construction where concrete slab floors are reinforced with Milcor $\frac{3}{4}$ -inch Stay-Rib No. 3.

2. Varied spacing of the ribs in different types of $\frac{3}{4}$ -inch rib lath is unimportant as long as lath will carry wet concrete over spaces, as indicated in Table on page 38. Tests show absolutely no difference in capacity of Lath as a Form for wet concrete whether ribs are 6 inches apart or whether ribs are spaced closer than 6 inches.

3. No bond is provided between the rib of the lath and the concrete. Therefore the fewer ribs in a sheet, the greater the bonding area. Only enough ribs are required to render the lath stiff enough to act as a Form without sagging.

4. For long span concrete slabs reinforced with $\frac{3}{4}$ -inch Rib Lath, the Table of Safe Loads given on page 39, should be used only if $\frac{1}{2}$ inch of Portland Cement Plaster is applied to underneath side.

5. If slabs are not back plastered with Portland Cement Plaster, failure is likely to occur in bond between Lath and concrete, which will cause the entire slab to fail.

6. Concrete slabs must be cured with care so that the concrete will not dry out too quickly and cause improper mechanical bond between Lath and concrete.

7. Each width of lath must be fastened to steel lumber or bar joists in at least three places — at center and both edges.

Engineering Service

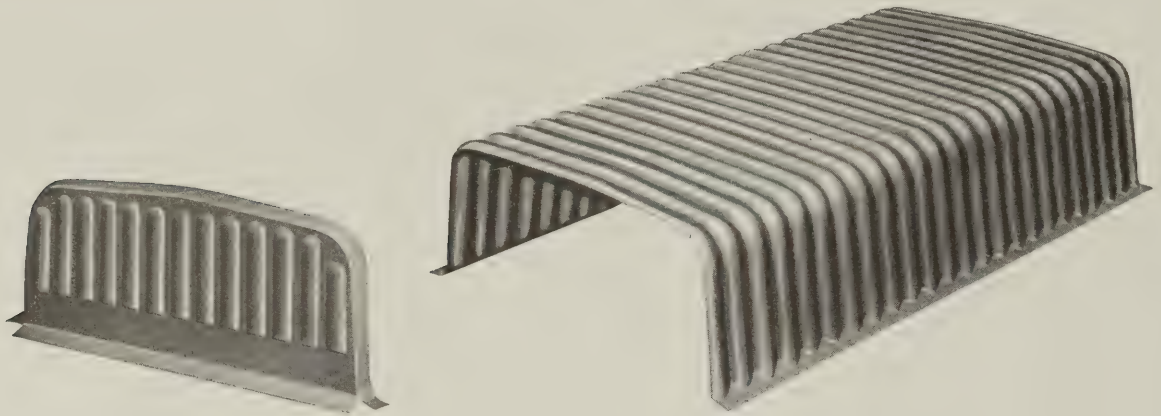
We shall be glad to refer you to engineers who have specialized on this type of construction and who are in position to render expert engineering advice on all classes of buildings. Consulta-

tions frequently develop economies, as well as assuring firesafe, investment-safe, permanent construction.

Appointments arranged at your convenience.



16th District School No. 2, Milwaukee, a fine example of a modern school embodying Milcor Products.



MILCOR Corrugated Steel Domes

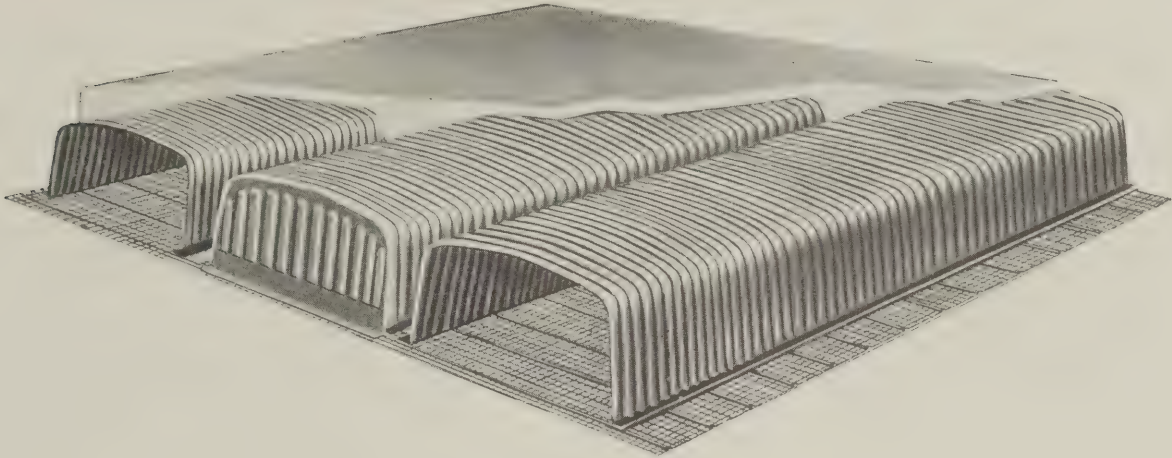
REINFORCED concrete floors formed by MILCOR STEEL DOMES are the ultimate expression of economy and strength in this universally-employed type of construction. They are the result of a comprehensive study of the theories and principles governing reinforced concrete design. They are the outcome of a consummate endeavor to combine most economically the practical with the theoretical.

MILCOR STEEL DOME FLOORS have unsurpassable advantages when used in connection with either a structural steel frame, a reinforced concrete frame, or a wall-bearing structure, in the construction of buildings required to sustain light loadings. This class includes structures such as hotels, office buildings, apartment buildings, hospitals, churches, schools, and the like. Even in the erection of structures of a heavier character or of a unique type which require extreme delicacy in their design, MILCOR STEEL DOMES will at times provide a solution which cannot be equalled.

This type of floor construction is probably best described as a series of parallel tee beams of which the flanges are connected to form a solid concrete floor surface. For practically all ordinary cases

these beams — or joists, or ribs — are 5 inches or 6 inches in width and are spaced 25 inches or 26 inches on centers or 20 inches apart in the clear. The flanges, or topping, are in such instances usually 2 inches or 2½ inches thick. By way of illustration this floor system can be visualized as being not unlike wood joist construction such as used in frame buildings.

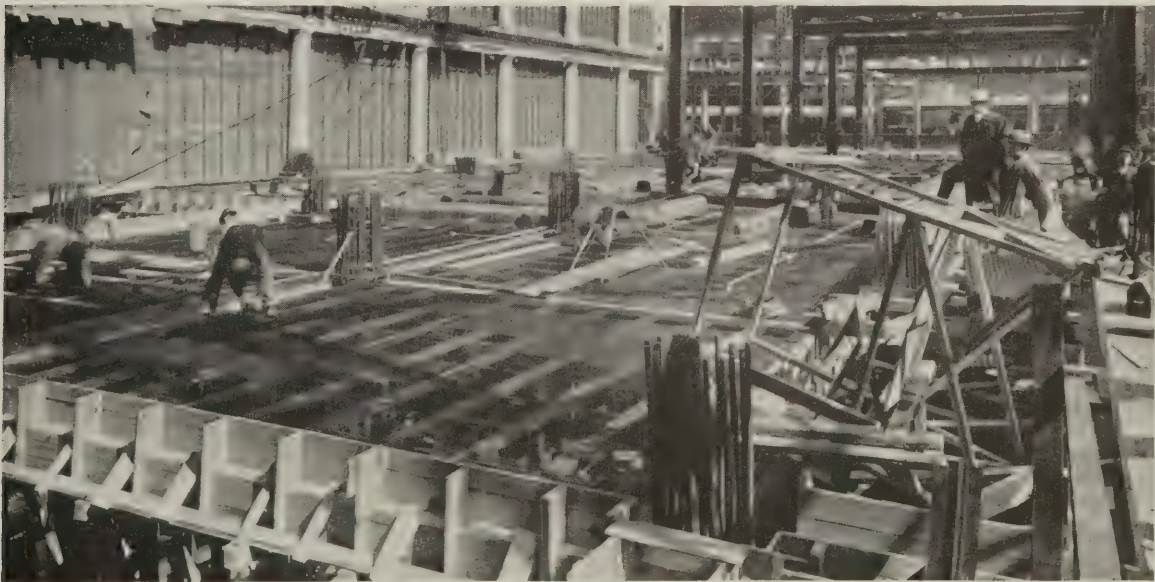
For fabricating these floors MILCOR STEEL DOMES are placed on the wood formwork in the manner shown on pages 47, 48 and 49 and concrete is poured over them to a thickness of the depth of the Dome plus 2 or 2½ inches as the case may be. This procedure, when considered from the standpoint of utilizing the domes to eliminate an excess of concrete from an otherwise solid slab of the same thickness, presents striking comparisons between MILCOR STEEL DOME FLOORS and ordinary solid slabs or flat slabs. As much as 50 or 60 per cent of the amount of concrete necessary for the latter can be saved by concentrating the strength of the slab into joists such as are formed with MILCOR STEEL DOMES. Such saving in concrete obviously results in greatly reduced weight of construction, which consequently permits the use of lighter beams, columns and footings.



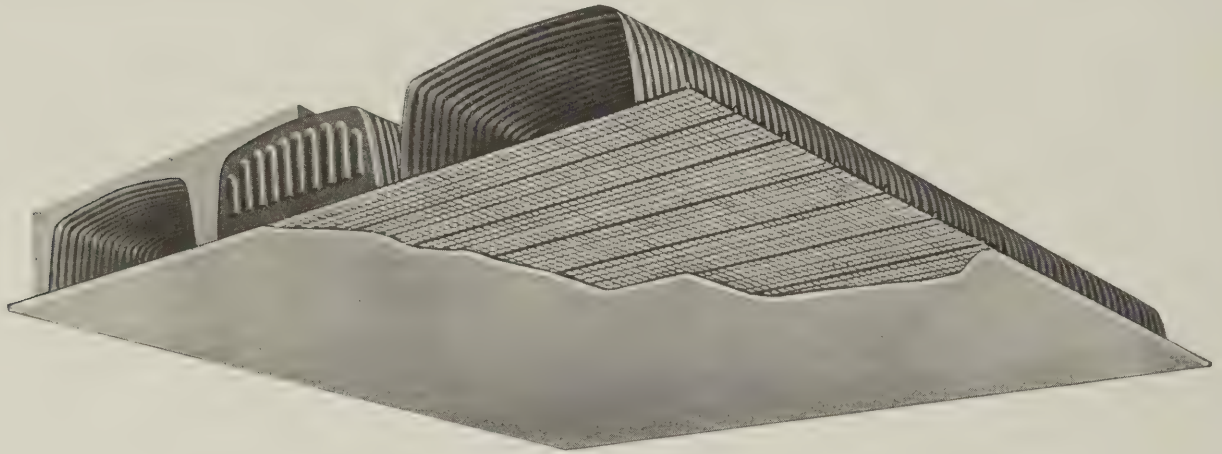
MILCOR STEEL DOME FLOORS, compared with rib slabs formed with terra cotta or clay tile, show a very definite saving in weight and expense of handling, due to the fact that terra cotta tile are about 30 times as heavy as MILCOR DOMES for an equal area and require about four times the amount of handling because of the smaller dimensions of each tile.

The sound-proof quality of MILCOR STEEL DOME FLOORS, due to the perfect insulation provided by the dead air spaces under the domes when an attached

plastered ceiling is used, presents another distinct benefit derived from their use. Also, apart from any direct permanent structural gain, the speed of erection and the drying-out process of the structure are greatly augmented by the elimination of all but these small concentrated masses of concrete. In the light of floor lay-out, again, these features present an extremely satisfactory method because long spans may be made without the customary beam obstructions and otherwise inevitable encroachments on practical economy. These



Preparing for placing of Milcor Steel Domes. Over the temporary wood frame work, Stay-Rib Lath has been placed. Then Milcor Domes and reinforcing rods are set in place. See next page.



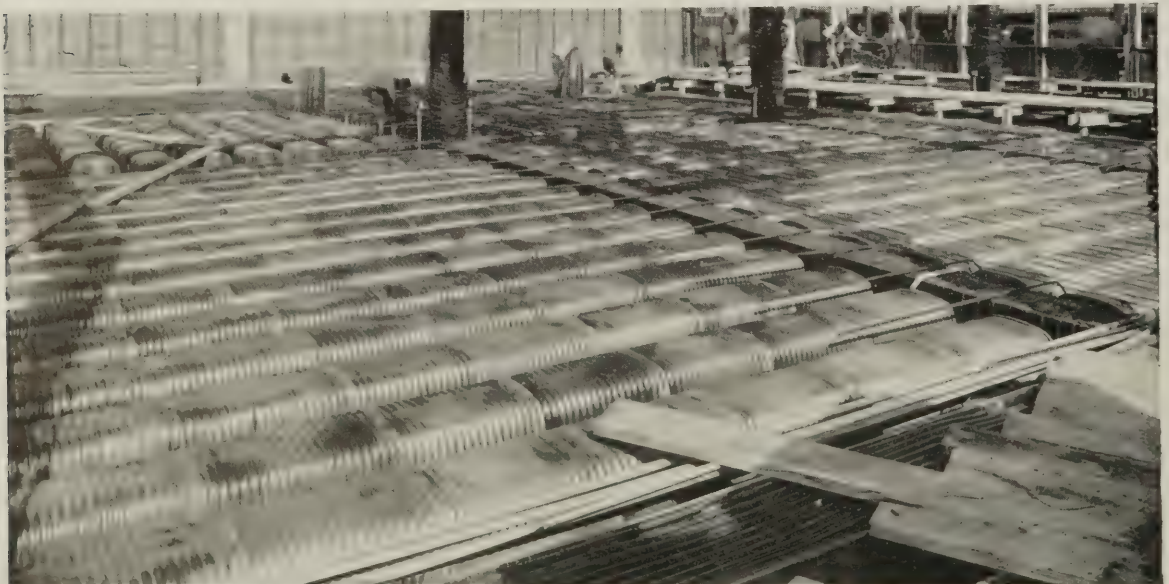
qualities, and others, when summed up, afford an insight into the reason for the well-established precedent in this direction

and for many an architect's and engineer's satisfied clientele.

Specifications of Milcor Steel Domes

MILCOR STEEL DOMES are manufactured in four weights: No. 26 Ga., No. 24 Ga., No. 22 Ga., and No. 20 Ga. They are formed with deep corrugations in the top and sides, which, together with a $\frac{3}{8}$ -inch crown in the top, offer maximum rigidity of formwork. Six heights of Domes are carried in stock, namely, 4-inch, 6-inch, 8-inch, 10-inch, 12-inch, and 14-inch, which

are sufficiently adequate for all conditions. Lengths of Domes are 30 inches and 35 inches, these allowing for enough combinations in rows to cover all spans. All straight MILCOR DOMES are 20 inches in width at the bottom with a 1-inch flange on either side to facilitate nailing to the wooden soffits.



Milcor Domes completely placed on the same floor illustrated on preceding page. This photo was taken at Gimbel Bros. Department Store, Milwaukee



Milcor Single Tapered Steel Domes in Position.

(Specification Data continued from page 48.)

MILCOR END CAPS are formed from No. 28 Gauge sheets to provide a tight-fitting closing for each row of Domes.

For cases of special design, in which an excessive shearing stress must be provided for at the ends of joists, MILCOR Warehouses are equipped to furnish single and double-tapered Domes.

MILCOR single-tapered DOMES have the standard cross-section at one end while the width of the other end is decreased from 20 inches to 15 inches, the sides tapering accordingly and the height remaining constant. MILCOR Single-tapered Domes afford a method of taking care of high negative concrete stresses at supports as well as high shearing stresses, thus permitting heavier loadings and longer spans without the necessity for additional floor thickness.

MILCOR Double-tapered Steel Domes

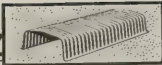
are similar in all respects to MILCOR Single-tapered Steel Domes except for a decrease in the height of $2\frac{1}{2}$ inches at one end as well as a decrease in width. These are used at the ends of rows and cause the concrete to be placed in the supporting tee-beams where it will be most useful and economical. For instance, the flange of such tee beam when used in connection with this type of construction can be reduced from 6 feet in width to 4 feet in width (a decrease of 1 foot on each side) by concentrating the concrete necessary for compression where it will be needed and thereby develop more fully the strength of the beam.

All MILCOR Tapered Steel Domes are 35 inches in length and are made in all heights except 4 inches. Special MILCOR End Caps are furnished to securely close the small ends of Tapered Domes.

Method of Placing Milcor Steel Domes

In cases where ceilings are required directly under the concrete joists, MILCOR STAY-RIB Lath is placed on the forms, followed by the setting of No. 26 Ga. MILCOR STEEL DOMES. The Domes are nailed

lightly to the soffit boards, the rows being 5 inches or 6 inches apart, according to the width of joists required. After this, the reinforcing rods are set in place, and to these the Lath (already in place) is wired.



After the concrete has been poured and has set sufficiently, the wooden shoring and formwork are removed and the Lath is ready for plastering. It should be noted that these No. 26 Ga. (permanent) Domes are allowed to remain in place. No. 24, No. 22, and No. 20 Ga. (removable) MILCOR STEEL DOMES, when used, should be removed after the concrete has set, and re-used elsewhere. Attachments, or Milcor Inserts, as described and illustrated below, should be imbedded in the concrete to which the metal lath may be attached after the forms are removed.

Suspended ceilings and furred ceilings can be provided by suspending from the

concrete $\frac{1}{4}$ -inch Round Hanger Rods to which $1\frac{1}{2}$ -inch or 2-inch MILCOR Cold Rolled Runner Channels are attached at intervals of 4 feet. To these in turn are tied at right angles the furring channels (Cubro or $\frac{3}{4}$ -inch MILCOR Channels) which are spaced 12 inches or 16 inches on centers so that MILCOR STAY-RIB Metal Lath or MILCOR NETMESH DIAMOND EXPANDED Metal Lath may be wired to them and provide a flat plastering surface of the greatest possible rigidity. In this latter case, No. 26 Ga. DOMES may be removed or allowed to remain, as desired.

See architectural specifications, Page 95.

Ultra-Economic Qualities of Milcor Domes

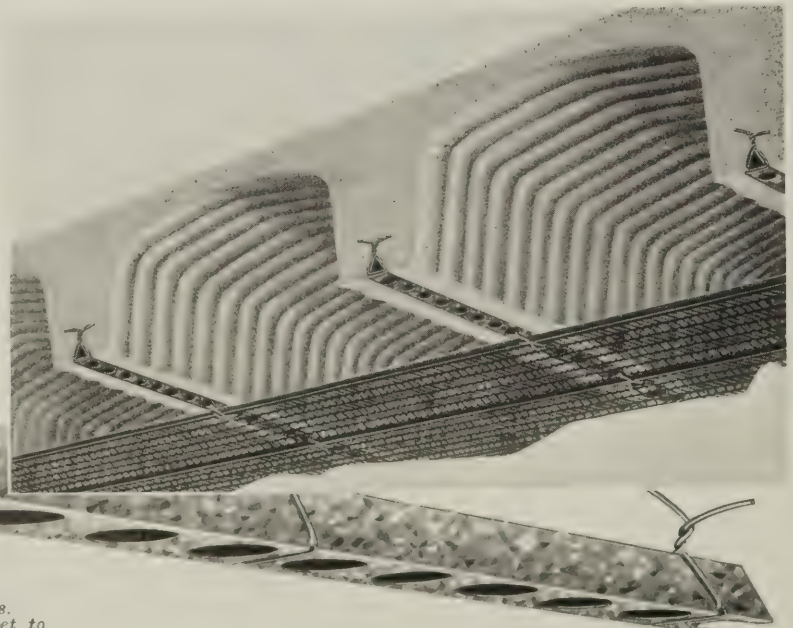
Emphasis must be laid on the fact that MILCOR STEEL DOMES are primarily a formwork installed with the view of eliminating all unnecessary concrete. MILCOR Engineers have adhered strictly to this principle and MILCOR DOMES are designed with this as the paramount consideration. Consequently, as compared to other cor-

rugated forms, a claim of ultra-economy can be substantiated to the extent of a saving of 6 to 12 per cent in concrete over others. This is due to the fact that the sides of MILCOR Steel Domes are tapered toward the top only to a minimum degree while others have sides of considerably more taper.

A comparative study of our tables and details included herein will further impress you with this very distinct advantage in the use of MILCOR STEEL DOMES.

Milcor Insert No. 11 for Attached Ceilings

THE triangular Milcor Insert No. 11 for attached ceilings on reinforced concrete joist formed by steel domes, is placed in position on the wood shoring before the concrete is poured. Heavy wires, on the Insert as shown, become firmly embedded in the concrete. After removing wood forms and steel domes, the openings on bottom side of Insert permit convenient tying of metal lath at any point.



*Patent applied for
Made of No. 26 Ga. Galv. steel. Heavy
reinforcing wires at eight-inch intervals.
Stock lengths, 12 feet. Packed 600 feet to
crate. Weight, approximately 160 lbs. per crate.*

MILCOR PRODUCTS

Properties of Reinforced Concrete Floors Formed with Milcor Steel Domes

5" Joists—25" o. c.—with 2" Concrete Slab				5" Joists—25" o. c.—with 2½" Concrete Slab			
Height of Dome, inches	Average Weight per Square Foot, Lbs.	Cubic Feet of Concrete per Square Foot	Core Area, %	Height of Dome, inches	Average Weight per Square Foot, Lbs.	Cubic Feet of Concrete per Square Foot	Core Area, %
4	38.3	.255	49.0	4	44.3	.296	45.4
6	43.7	.292	56.3	6	49.7	.333	53.0
8	49.0	.326	60.9	8	55.0	.367	58.0
10	56.3	.376	62.4	10	62.3	.417	60.0
12	62.0	.414	64.6	12	68.0	.455	62.5
14	72.4	.482	63.7	14	78.4	.523	61.9

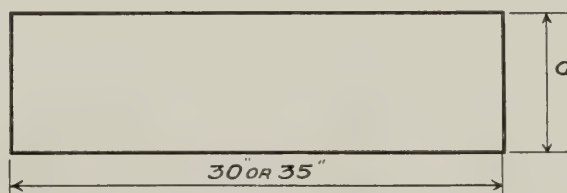
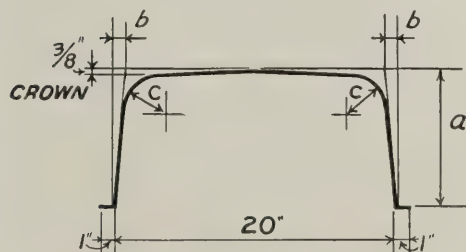
4" Joists—24" o. c.—with 2" Concrete Slab				4" Joists—24" o. c.—with 2½" Concrete Slab			
Height of Dome, inches	Average Weight per Square Foot, Lbs.	Cubic Feet of Concrete per Square Foot	Core Area, %	Height of Dome, inches	Average Weight per Square Foot, Lbs.	Cubic Feet of Concrete per Square Foot	Core Area, %
4	35.2	.234	53.2	4	41.2	.275	49.3
6	39.8	.265	60.3	6	45.8	.306	57.0
8	44.0	.293	64.8	8	50.0	.334	62.0
10	50.5	.336	66.4	10	56.5	.377	63.6
12	55.5	.370	68.2	12	61.5	.411	66.0
14	64.5	.430	67.5	14	70.5	.471	65.7

5" Joists—25" o. c.—with 3" Concrete Slab				6" Joists—26" o. c.—with 3" Concrete Slab			
Height of Dome, inches	Average Weight per Square Foot, Lbs.	Cubic Feet of Concrete per Square Foot	Core Area, %	Height of Dome, inches	Average Weight per Square Foot, Lbs.	Cubic Feet of Concrete per Square Foot	Core Area, %
12	74.4	.495	60.4	12	82.0	.545	56.3
14	84.8	.565	60.0	14	93.5	.623	56.0

Weights of Milcor Steel Domes and Ends Caps

Size	26 Gauge			24 Gauge			22 Gauge			*20 Gauge			28Gauge
	Lbs. per pc.		Lbs. per Lin. Ft.	Lbs. per pc.		Lbs. per Lin. Ft.	Lbs. per pc.		Lbs. per Lin. Ft.	Lbs. per pc.		Lbs. per Lin. Ft.	End Caps Lbs.perPc
	30"	35"		30"	35"		30"	35"		30"	35"		
4"	3.85	4.50	1.54	5.13	5.99	2.05	7.50	8.76	3.00	8.75	10.22	3.50	.73
6"	4.48	5.23	1.79	5.98	6.98	2.39	8.28	9.67	3.31	10.03	11.71	4.01	.94
8"	5.13	5.99	2.05	6.83	7.97	2.73	9.40	10.98	3.76	11.33	13.23	4.53	1.15
10"	5.78	6.75	2.31	7.70	8.99	3.08	10.18	11.88	4.07	12.23	14.28	4.89	1.35
12"	6.40	7.48	2.56	8.53	9.96	3.41	11.50	13.43	4.60	13.50	15.77	5.40	1.57
14"	7.05	8.23	2.82	9.38	10.95	3.75	12.48	14.57	4.99	14.38	16.79	5.75	1.77

Specifications and Dimensions of Milcor Steel Domes



Height	(a)	4"	6"	8"	10"	12"	14"
Offset	(b)	1½"	1½"	1½"	¾"	¾"	1½"
Radius	(c)	2"	2"	2"	3"	2"	3"

Made of No. 26, No. 24, No. 22, and No. 20 Gauge Sheets.

All Domes have ⅜-inch deep corrugations.
Width at bottom—20 inches.
Flanges 1 inch wide on each side.

Crown of ⅜-inch in top.

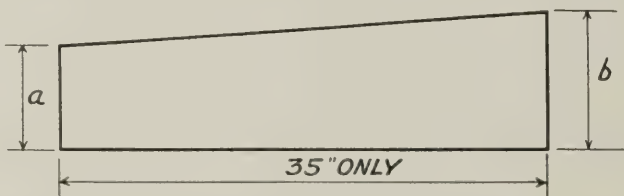
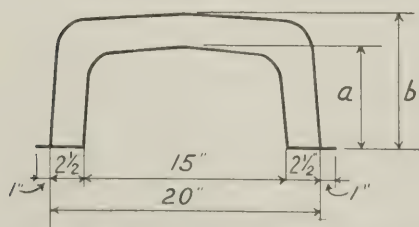
Lengths—30 inches and 35 inches.

28-Gauge End Caps furnished to fit securely at ends of rows.

Length and Number of Milcor Steel Domes Required for Various Spans

Clear Span	No. Domes Required		Total Length Dome	No. End Caps	Clear Span	No. Domes Required		Total Length Dome	No. End Caps	Clear Span	No. Domes Required		Total Length Dome	No. End Caps
	30"	35"				30"	35"				30"	35"		
8'0"	1	2	8' 4"	2	18'9"	2	5	19' 7"	2	29'6"	4	7	30' 5"	2
8'3"	0	3	8' 9"	2	19'0"	2	5	19' 7"	2	29'9"	3	8	30'10"	2
8'6"	0	3	8' 9"	2	19'3"	1	6	20' 0"	2	30'0"	3	8	30'10"	2
8'9"	4	0	10' 0"	2	19'6"	1	6	20' 0"	2	30'3"	2	9	31' 3"	2
9'0"	4	0	10' 0"	2	19'9"	0	7	20' 5"	2	30'6"	1	10	31' 8"	2
9'3"	4	0	10' 0"	2	20'0"	6	2	20'10"	2	30'9"	1	10	31' 8"	2
9'6"	4	0	10' 0"	2	20'3"	6	2	20'10"	2	31'0"	0	11	32' 1"	2
9'9"	3	1	10' 5"	2	20'6"	5	3	21' 3"	2	31'3"	6	6	32' 6"	2
10'0"	3	1	10' 5"	2	20'9"	4	4	21' 8"	2	31'6"	6	6	32' 6"	2
10'3"	2	2	10'10"	2	21'0"	4	4	21' 8"	2	31'9"	5	7	32'11"	2
10'6"	2	2	10'10"	2	21'3"	3	5	22' 1"	2	32'0"	5	7	32'11"	2
10'9"	1	3	11' 3"	2	21'6"	3	5	22' 1"	2	32'3"	4	8	33' 4"	2
11'0"	1	3	11' 3"	2	21'9"	9	0	22' 6"	2	32'6"	3	9	33' 9"	2
11'3"	0	4	11' 8"	2	22'0"	1	7	22'11"	2	32'9"	3	9	33' 9"	2
11'6"	5	0	12' 6"	2	22'3"	1	7	22'11"	2	33'0"	2	10	34' 2"	2
11'9"	5	0	12' 6"	2	22'6"	0	8	23' 4"	2	33'3"	2	10	34' 2"	2
12'0"	5	0	12' 6"	2	22'9"	0	8	23' 4"	2	33'6"	1	11	34' 7"	2
12'3"	4	1	12'11"	2	23'0"	6	3	23' 9"	2	33'9"	1	11	34' 7"	2
12'6"	4	1	12'11"	2	23'3"	5	4	24' 2"	2	34'0"	0	12	35' 0"	2
12'9"	3	2	13' 4"	2	23'6"	5	4	24' 2"	2	34'3"	6	7	35' 5"	2
13'0"	3	2	13' 4"	2	23'9"	4	5	24' 7"	2	34'6"	5	8	35'10"	2
13'3"	2	3	13' 9"	2	24'0"	3	6	25' 0"	2	34'9"	5	8	35'10"	2
13'6"	1	4	14' 2"	2	24'3"	3	6	25' 0"	2	35'0"	4	9	36' 3"	2
13'9"	1	4	14' 2"	2	24'6"	2	7	25' 5"	2	35'3"	4	9	36' 3"	2
14'0"	0	5	14' 7"	2	24'9"	2	7	25' 5"	2	35'6"	3	10	36' 8"	2
14'3"	0	5	14' 7"	2	25'0"	1	8	25'10"	2	35'9"	2	11	37' 1"	2
14'6"	6	0	15' 0"	2	25'3"	0	9	26' 3"	2	36'0"	2	11	37' 1"	2
14'9"	5	1	15' 5"	2	25'6"	0	9	26' 3"	2	36'3"	1	12	37' 6"	2
15'0"	5	1	15' 5"	2	25'9"	6	4	26' 8"	2	36'6"	1	12	37' 6"	2
15'3"	4	2	15'10"	2	26'0"	5	5	27' 1"	2	36'9"	0	13	37'11"	2
15'6"	3	3	16' 3"	2	26'3"	5	5	27' 1"	2	37'0"	6	8	38' 4"	2
15'9"	3	3	16' 3"	2	26'6"	4	6	27' 6"	2	37'3"	6	8	38' 4"	2
16'0"	2	4	16' 8"	2	26'9"	4	6	27' 6"	2	37'6"	5	9	38' 9"	2
16'3"	2	4	16' 8"	2	27'0"	3	7	27'11"	2	37'9"	4	10	39' 2"	2
16'6"	1	5	17' 1"	2	27'3"	2	8	28' 4"	2	38'0"	4	10	39' 2"	2
16'9"	0	6	17' 6"	2	27'6"	2	8	28' 4"	2	38'3"	3	11	39' 7"	2
17'0"	0	6	17' 6"	2	27'9"	1	9	28' 9"	2	38'6"	3	11	39' 7"	2
17'3"	6	1	17'11"	2	28'0"	1	9	28' 9"	2	38'9"	2	12	40' 0"	2
17'6"	5	2	18' 4"	2	28'3"	0	10	29' 2"	2	39'0"	1	13	40' 5"	2
17'9"	5	2	18' 4"	2	28'6"	6	5	29' 7"	2	39'3"	1	13	40' 5"	2
18'0"	4	3	18' 9"	2	28'9"	6	5	29' 7"	2	39'6"	0	14	40'10"	2
18'3"	4	3	18' 9"	2	29'0"	5	6	30' 0"	2	39'9"	6	9	41' 3"	2
18'6"	3	4	19' 2"	2	29'3"	4	7	30' 5"	2	40'0"	6	9	41' 3"	2

Specifications and Dimensions of Milcor Single and Double Tapered Domes



Size	6	8	10	12	14
Small End (a)	3 1/2"	5 1/2"	7 1/2"	9 1/2"	11 1/2"
Large End (b)	6"	8"	10"	12"	14"

Milcor Single Tapered Domes are the same as Milcor Double Tapered Domes, except that they have no vertical taper, that is, the dimensions "a" and "b"

are the same on Single Tapered Domes.

Milcor Tapered Domes made only in 6, 8, 10, 12, and 14-inch sizes and all are 35 inches long.

Milcor Reinforced Concrete Design

THIS article assumes that those who use these computations and tables have a primary understanding of the fundamental principles of Reinforced Concrete Design. These principles, however, are based on certain assumptions which in essence are as follows:

1. If when a beam is not loaded, a plane cross-section be made, this cross-section will still be a plane after the load is put on and bending takes place. (Navier's hypothesis.)
2. The stress is proportional to the deformation. (Hooke's Law.)
3. The bond between the steel and concrete is sufficiently great to cause the two materials to act together.
4. The tensile strength of concrete is considered as nil.
5. The ratio of the Modulus of Elasticity of steel to that of concrete of a 1:2:4 mix, is 15.

Notations

Notations as customarily used in reinforced concrete design and as employed in the following computations and formulae are:

M = The bending moment in inch-pounds.

T = The total tension in the steel.

C = The total compression in the concrete.

f_s = The unit fibre stress of the steel.

f_c = The unit fibre stress of the concrete.

E_s = The modulus of elasticity of the steel.

E_c = The modulus of elasticity of the concrete in compression.

n = The ratio of E_s to E_c .

b = The width of a rectangular beam or width of the flange of a tee-beam (in inches).

b_1 = The width of the stem of a tee-beam (in inches).

d = The distance from the top of the compressive face of the concrete to the center of gravity of the steel (in inches).

N. A. = Neutral axis of the section.

k = The ratio of the depth of the neutral axis to the depth d .

t = Thickness of flange.

A_s = The cross-sectional area of steel.

p = The ratio of the area of steel to the effective area of concrete = $\frac{A_s}{bd}$

z = The distance from top of concrete to the centroid of the compression area.

jd = The arm of the resisting couple (inches) = $d - z$.

V = Total Vertical Shear at a given section

v = Unit Vertical Shear at a given section = $\frac{V}{bjd}$
(in. lbs. per sq. in.)

W = Total load on beam = wl .

w = Load on beam per linear foot.

l = Span of beam in feet.

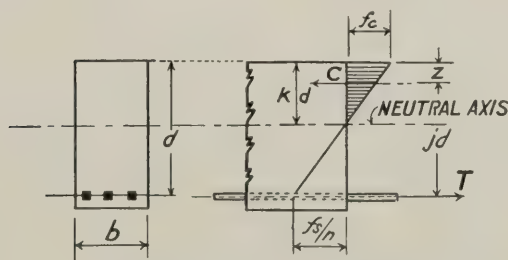


Diagram of Stress—Rectangular Beam.

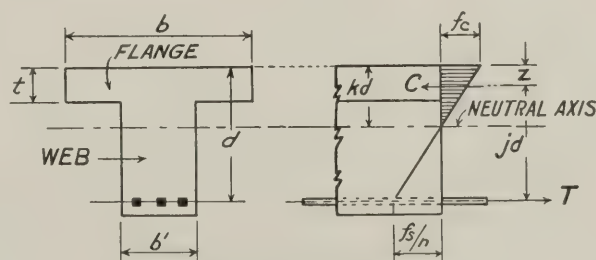


Diagram of Stress—Tee-Beam
(Continued on next page)

Reinforced Concrete Design (Continued)

Formulas

Rectangular Beams

$$k = \sqrt{2pn + (pn)^2} - pn = \frac{1}{1 + \frac{fs}{nfc}}$$

$$j = 1 - 1/3 k.$$

$$p = \frac{As}{bd}$$

$$fc = \frac{2M}{jkb d^2} = \frac{2pfs}{k}$$

$$fs = \frac{M}{Asjd}$$

$$As = \frac{M}{fsjd} \text{ or } pbd.$$

Tee Beams

$$k = \frac{1}{1 + \frac{fs}{nfc}}$$

$$kd = \frac{2nd As + bt^2}{2n As + 2bt}$$

$$z = \frac{3kd - 2t}{2kd - t} \times \frac{t}{3}$$

$$jd = d - z$$

$$As = \frac{M}{fsjd}$$

$$tc = \frac{Mkd}{bt \times jd (kd - 1/2 t)}$$

Shear Reinforcement

$$v = \frac{V}{bjd} \text{ or } \frac{V}{\text{shear area of joist}} \text{ (for joist construction)}$$

$$s = \frac{As fs jd}{V} \text{ in which } s = \text{horizontal spacing at any given section.}$$

$$V' = V - 60 bjd = \text{total shear producing stress in reinforcement.}$$

Typical Example of Design of Rib-Slab Formed by Milcor Steel Domes

Span = 23'-0". Live Load = 75 lbs. per sq. ft.
 $fs = 18000$ lbs. per sq. in. $fc = 700$ lbs. per sq. in.
 $n = 15$.

Construction assumed to be freely supported at one end and continuous at the other, so $M = \frac{Wl}{10}$ or $\frac{wl^2}{10}$

Assume 12" Milcor Dome + 2" Concrete Slab, with joists 5" wide at bottom, spaced 25" on centers.

$d = 12" + 2" - 3/4"$ (fire-proofing) $- 1/2"$ (half diameter of a 1" bar) = $12 3/4"$.

Summation of Load per sq. ft. of floor.

L. L. = Live Load = 75. lbs.

D. L. = Dead Load { Slab and joist 62.0
 Floor finish 12.
 Ceiling 7.5

$$M = \frac{325.5 \times 23^2 \times 12}{10} = 207,000 \text{ inch pounds.}$$

Assume jd to be $(d - 1/2 t) = 11.75$ in. which is always on the safe side.

$$\text{Therefore } As = \frac{M}{fsjd} = \frac{207,000}{18000 \times 11.75} = .98 \text{ sq. in.}$$

Use { 1 - 7/8-in. Round Bar
 1 - 3/4-in. Round Bar

$$V = \text{Maximum end shear} = \frac{325.5 \times 23}{2} = 3740 \text{ lbs.}$$

$$v = \text{Unit Shear} = \frac{3740}{75.0} = 50 \text{ lbs. per sq. in. which is well below 60 lbs. per sq. in. allowed.}$$

(75.0 sq. in. is the shear area for a 12' + 2 joist.)

If, however, results from the application of Tee-Beam formulas instead of the approximate ($jd = d - 1/2 t$) are required, the computations are as follows:

(NOTE: These formulas apply only when kd is greater than 2 inches in which case the Neutral Axis is in the Web.)

$$kd = \frac{2nd As + bt^2}{2n As + 2bt} = \frac{2 \times 15 \times 12.75 \times .98 + 25 \times 4}{2 \times 15 \times .98 + 2 \times 25 \times 2} = 3.66$$

$$z = \frac{3kd - 2t}{2kd - t} \times \frac{t}{3} = \frac{3 \times 3.66 - 4}{2 \times 3.66 - 2} \times \frac{2}{3} = .878$$

$$jd = 12.75 - .878 = 11.872$$

$$As = \frac{207,000}{18000 \times 11.872} = .968 \text{ sq. in.}$$

Use { 1 - 7/8-in. Round Bar
 1 - 3/4-in. Round Bar

Explanation of Milcor Tables for Reinforced Concrete Design

THE tabulations on the following pages indicate safe *total loads* uniformly distributed per square foot of surface area for floors or roofs constructed with Milcor Steel Domes spaced 25 inches center to center and having 5-inch wide concrete joists, reinforced with steel rods of standard fabrication.

These tables are based on f_c (unit fibre stress of concrete)=700 pounds per square inch and f_s (unit fibre stress of steel)=18,000 pounds per square inch. The concrete over the Domes has been figured at a depth of 2 inches and $2\frac{1}{2}$ inches for Domes 4, 6, 8, 10, or 12 inches high and at a depth of $2\frac{1}{2}$ and 3 inches for Domes 14 inches high. These dimensions may be varied to suit individual conditions.

Fire-proofing of all reinforcing steel has been figured at $\frac{3}{4}$ inches clear, from the bottom of the joists to the extreme lower surface of the steel. The effective depth, "d," is taken from the center of gravity of the steel rods to the top of the concrete. Between bars, sufficient concrete has been allowed to produce a perfect bond for all reinforcing bar sizes.

WL WL WL

Bending moments—, —, —, have
8 10 12

been computed and the safe total loads per square foot, for various spans, have been accurately determined. The full dead weight of construction, the live load and all other super-imposed loads per square

foot of floor area, are included in these figures.

To obtain the safe live load, deduct from the figures given in the table, the weight of construction (as you read it in the table in question); then also deduct the weights of flooring, partitions, ceilings, etc.

Values to the right or above the heavy lines exceed 60 pounds per square inch in shear and require stirrups of suitable size to take care of excess shear. In no case does the combined shear in concrete and steel exceed 120 pounds per square inch. For continuous action, one bar in each joist should be bent up at the quarter point and should extend to the quarter point of the adjacent span.

To prevent cracks in the concrete from contraction or expansion after setting, use $\frac{1}{4}$ -inch round rods, 12 inches center to center, for 2-inch topping; $\frac{3}{8}$ -inch round rods, 24 inches center to center for $2\frac{1}{2}$ -inch topping, and $\frac{3}{8}$ -inch round rods, 18 inches center to center for 3-inch topping—at right angles to the joists.

To compute the safe load for $f_c=650$ pounds per square inch and $f_s=16000$ pounds per square inch, take $\frac{8}{9}$ ths of the values given in the tables.

For further information regarding Milcor Materials or their uses and adaptations, write to Milwaukee Corrugating Company, Milwaukee, Wisconsin. We shall be glad to co-operate in co-ordinating Milcor Products with your plans.

Reinforced Concrete Design Tables

4" Milcor Steel Domes + 2" Concrete

Safe Total Load Uniformly Distributed per Square Foot. 5" Joists — 25" O. C.

Weight per Square Foot of Slab Area = 38.3 Lbs. Concrete per Square Foot of Slab Area = .255 Cubic Feet. Shear Area = 29.2 Square Inches. Core Area of Section = 49.0 Per Cent.							$f_s = 18000$ Lbs. per Sq. In. $f_c = 700$ Lbs. per Sq. In. FOR STRESSES OF — $f_s = 16,000$ Lbs. per Square Inch, and $f_c = 650$ Lbs. per Square Inch, — USE 8/9 of values below.								
Area of Steel	.22 Square Inch			.31 Square Inch			.39 Square Inch			.45 Square Inch			.50 Square Inch		
Bars { Straight Bent	1- $\frac{3}{8}$ " Round 1- $\frac{3}{8}$ " Round			1- $\frac{3}{8}$ " Round 1- $\frac{1}{2}$ " Round			1- $\frac{1}{2}$ " Round 1- $\frac{1}{2}$ " Round			1- $\frac{1}{2}$ " Round 1- $\frac{1}{2}$ " Square			1- $\frac{1}{2}$ " Square 1- $\frac{1}{2}$ " Square		
Span	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12
5-0	225	281	338	313	392	470	404	505	606	453	565	680	507	633	...
6-0	157	196	235	218	272	326	280	350	420	315	394	472	351	440	527
7-0	115	145	173	160	200	240	206	258	309	232	290	347	258	324	388
8-0	90	110	133	122	153	183	157	197	236	177	222	266	198	247	296
9-0	70	88	105	97	121	145	125	156	187	140	175	210	156	195	235
10-0	57	72	85	78	97	117	101	127	152	113	142	170	126	158	190
11-0	47	58	70	65	81	97	84	104	125	94	117	140	105	131	157
12-0	40	49	59	55	68	82	70	86	105	79	98	118	88	110	132
13-0	...	...	...	47	58	70	59	74	88	67	84	101	75	94	112
14-0	...	...	...	...	...	60	51	64	76	58	73	87	65	81	97
15-0	...	...	...	...	...	...	44	55	66	50	63	76	56	70	84
16-0	...	...	...	...	...	...	...	...	58	44	55	66	49	62	74
17-0	...	...	...	...	...	...	...	...	...	...	...	...	44	55	66

Figures above Heavy Lines are Loads for which Unit Shear is over 60 lbs. per Square Inch.

4" Milcor Steel Domes + 2 $\frac{1}{2}$ " Concrete

Safe Total Load Uniformly Distributed per Square Foot. 5" Joists — 25" O. C.

Weight per Square Foot of Slab Area = 44.3 Lbs. Concrete per Square Foot of Slab Area = .296 Cubic Feet. Shear Area = 31.5 Square Inches. Core Area of Section = 45.4 Per Cent.							$f_s = 18000$ Lbs. per Sq. In. $f_c = 700$ Lbs. per Sq. In. FOR STRESSES OF — $f_s = 16,000$ Lbs. per Square Inch, and $f_c = 650$ Lbs. per Square Inch, — USE 8/9 of values below.								
Area of Steel	.22 Square Inch			.31 Square Inch			.39 Square Inch			.45 Square Inch			.50 Square Inch		
Bars { Straight Bent	1- $\frac{3}{8}$ " Round 1- $\frac{3}{8}$ " Round			1- $\frac{3}{8}$ " Round 1- $\frac{1}{2}$ " Round			1- $\frac{1}{2}$ " Round 1- $\frac{1}{2}$ " Round			1- $\frac{1}{2}$ " Round 1- $\frac{1}{2}$ " Square			1- $\frac{1}{2}$ " Square 1- $\frac{1}{2}$ " Square		
Span	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12
6-0	172	215	258	240	300	360	302	377	453	348	435	522	387	480	580
7-0	127	158	190	176	220	264	221	277	332	255	320	383	284	355	427
8-0	97	121	145	135	168	202	169	212	254	196	245	294	218	272	326
9-0	77	96	115	107	133	160	134	167	201	154	194	232	172	214	258
10-0	62	79	95	87	108	130	108	136	163	125	156	188	139	174	209
11-0	51	64	77	71	89	107	90	112	135	103	129	155	115	144	172
12-0	44	54	65	60	75	90	75	94	113	87	109	130	96	121	145
13-0	...	...	...	51	64	77	64	80	96	74	93	111	82	103	123
14-0	...	...	...	44	55	66	55	69	83	64	80	96	71	86	106
15-0	...	...	...	...	...	...	48	60	72	55	69	83	62	77	93
16-0	...	...	...	...	...	...	42	53	64	49	61	73	54	68	82
17-0	...	...	...	...	...	...	...	...	...	43	54	65	48	60	72
18-0	...	...	...	...	...	...	...	...	...	...	...	...	43	54	64

Figures above Heavy Lines are Loads for which Unit Shear is over 60 lbs. per Square Inch.

Reinforced Concrete Design Tables

6" Milcor Steel Domes + 2" Concrete

Safe Total Load Uniformly Distributed per Square Foot. 5" Joists — 25" O. C.

Weight per Square Foot of Slab Area = 43.7 Lbs. Concrete per Square Foot of Slab Area = .292 Cubic Feet. Shear Area = 40.25 Inches. Core Area of Section = 56.3 Per Cent.							fs = 18000 Lbs. per Sq. In. fc = 700 Lbs. per Sq. In. FOR STRESSES OF — fs = 16,000 Lbs. per Square Inch, and fc = 650 Lbs. per Square Inch, — USE 8/9 of values below.									
Area of Steel		.39 Square Inch			.50 Square Inch			.614 Square Inch			.75 Square Inch			.88 Square Inch		
Bars {	Straight Bent	1-½" Round			1-½" Square			1-⅝" Round			1-⅝" Round			1-¾" Round		
		1-½" Round			1-½" Square			1-⅝" Round			1-¾" Round			1-¾" Round		
Span		WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12
7-0		284	355	426	362	453	543	440	550	660	537	674	...	623	...	...
8-0		218	272	326	277	346	415	331	421	505	412	515	...	478	596	...
9-0		172	215	258	229	274	329	267	334	400	326	408	490	377	471	...
10-0		139	174	209	177	222	266	216	270	324	264	330	396	306	384	460
11-0		115	144	173	147	183	220	178	222	267	218	273	327	253	317	380
12-0		97	121	145	123	154	185	150	185	225	183	229	275	213	267	320
13-0		83	103	124	111	139	167	127	159	191	156	195	234	181	227	271
14-0		71	89	107	92	113	136	110	130	165	135	168	202	156	196	235
15-0		62	78	93	78	98	118	96	120	144	118	147	176	136	171	205
16-0		55	69	82	71	88	105	85	105	126	103	130	155	120	150	180
17-0		48	60	72	62	78	93	76	95	113	92	114	137	106	133	159
18-0		43	53	64	56	68	82	68	85	101	82	102	122	95	119	142
19-0		...	...	...	50	62	75	61	76	90	73	92	110	85	106	128
20-0		...	...	...	45	56	68	55	67	81	66	82	99	77	96	115
21-0		...	...	...	...	51	61	50	62	73	60	75	90	70	87	105
22-0		...	...	...	...	...	...	45	57	67	55	68	82	63	79	95
23-0		...	...	...	...	...	...	...	52	66	50	62	75	58	73	87
24-0		...	...	...	...	...	...	...	47	56	46	57	69	53	67	80
25-0		...	...	...	...	...	...	...	...	...	...	53	64	49	62	74
26-0		...	...	...	...	...	...	...	...	...	...	49	59	45	57	68
27-0		...	...	...	...	...	...	...	...	...	...	...	...	...	53	64
28-0		...	...	...	...	...	...	...	...	...	...	...	...	...	50	59

Figures above Heavy Lines are Loads for which Unit Shear is over 60 lbs. per Square Inch.

6" Milcor Steel Domes + 2½" Concrete

Safe Total Load Uniformly Distributed per Square Foot. 5" Joists — 25" O. C.

Weight per Square Foot of Slab Area = 49.7 Lbs. Concrete per Square Foot of Slab Area = .333 Cubic Feet. Shear Area = 43.2 Square Inches. Core Area of Section = 53.0 Per Cent.							fs = 18000 Lbs. per Sq. In. fc = 700 Lbs. per Sq. In. FOR STRESSES OF — fs = 16,000 Lbs. per Square Inch, and fc = 650 Lbs. per Square Inch, — USE 8/9 of values below									
Area of Steel		.39 Square Inch			.50 Square Inch			.614 Square Inch			.75 Square Inch			.88 Square Inch		
Bars	{ Straight Bent	1-½" Round 1-½" Round			1-½" Square 1-½" Square			1-⅝" Round 1-⅝" Round			1-⅝" Round 1-¾" Round			1-¾" Round 1-¾" Round		
		WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12
Span		232	288	348	297	372	447	361	451	541	442	550	...	513	640	...
8-0		184	229	275	235	294	353	286	357	428	350	437	525	405	507	...
9-0		148	185	222	190	238	286	231	288	346	283	354	425	330	412	495
10-0		123	153	184	157	196	236	191	238	286	234	292	352	272	340	408
11-0		103	129	155	132	165	198	161	201	241	196	246	295	229	286	343
12-0		88	110	132	112	141	169	137	171	205	167	209	251	195	244	292
13-0		76	95	114	97	122	146	118	148	177	144	181	217	168	210	252
14-0		66	82	99	85	106	127	103	138	154	126	157	189	147	183	220
15-0		58	73	87	74	93	112	90	113	135	111	138	166	129	161	193
16-0		51	64	77	66	83	99	80	100	120	98	123	147	114	143	171
17-0		...	58	69	59	74	88	72	89	107	88	109	131	102	127	153
18-0		...	52	62	53	66	79	65	80	96	79	98	118	92	114	137
19-0		...	...	56	48	60	72	59	73	87	71	89	106	83	103	124
20-0		...	...	...	...	54	65	53	66	79	64	80	97	75	94	112
21-0		...	...	...	...	...	59	48	60	72	59	73	89	68	85	102
22-0		...	...	...	...	...	...	...	55	66	54	67	81	63	78	94
23-0		...	...	...	...	...	...	...	...	60	49	62	74	57	72	86
24-0		...	...	...	...	...	...	...	...	...	...	57	68	53	66	79
25-0		...	...	...	...	...	...	...	...	...	...	53	63	49	61	73
26-0		...	...	...	...	...	...	...	...	...	...	...	59	...	57	68
27-0		...	...	...	...	...	...	...	...	...	...	...	...	...	53	63
28-0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	59
29-0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Figures above Heavy Lines are Loads for which Unit Shear is over 60 lbs. per Square Inch.

Reinforced Concrete Design Tables

8" Milcor Steel Domes + 2" Concrete

Safe Total Load Uniformly Distributed per Square Foot. 5" Joists — 25" O. C.

Weight per Square Foot of Slab Area = 49.0 Lbs. Concrete per Square Foot of Slab Area = .326 Cubic Feet. Shear Area = 51.8 Square Inches. Core Area of Section = 60.9 Per Cent.										fs = 18000 Lbs. per Sq. In. fc = 700 Lbs. per Sq. In. FOR STRESSES OF— fs = 16,000 Lbs. per Square Inch, and fc = 650 Lbs. per Square Inch, — USE 8/9 of values below.									
Area of Steel		.50 Square Inch			.614 Square Inch			.75 Square Inch			.88 Square Inch			1.04 Square Inch			1.20 Square Inch		
Bars { Str. Bent		1-½" Square			1-⅝" Round 1-⅝" Round			1-⅝" Round 1-¾" Round			1-¾" Round 1-¾" Round			1-¾" Round 1-⅞" Round			1-⅞" Round 1-⅞" Round		
Span		WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12
10-0		228	285	343	278	347	417	341	426	512	397	496	595	467	583	...	535	...	...
11-0		189	236	283	230	287	345	282	352	423	328	410	492	386	484	580	444	555	...
12-0		158	198	238	193	242	290	237	296	356	276	344	413	325	406	488	374	467	...
13-0		135	169	202	165	206	247	202	252	303	234	294	352	277	346	415	317	396	476
14-0		116	146	175	142	178	213	174	217	261	202	253	304	239	298	358	274	342	410
15-0		101	127	152	123	154	185	152	190	228	176	220	264	208	260	312	238	298	357
16-0		89	112	134	109	136	163	133	166	200	155	194	232	183	228	274	210	262	314
17-0		79	99	118	96	120	144	118	147	177	137	172	206	162	202	243	186	232	278
18-0		71	88	106	86	108	129	105	131	158	122	153	184	145	180	216	166	200	248
19-0		63	79	95	77	97	116	95	118	142	110	137	165	130	162	195	148	185	222
20-0		57	72	86	70	87	104	85	106	128	100	124	149	117	146	175	134	162	201
21-0		52	65	78	63	79	94	77	97	116	90	112	135	106	133	159	122	152	182
22-0		...	59	71	57	72	86	71	88	106	82	102	123	97	121	145	111	138	165
23-0		...	54	65	53	67	80	65	81	97	75	94	112	89	111	133	101	126	151
24-0		...	...	60	...	60	72	59	74	89	69	86	103	81	101	122	93	117	140
25-0		...	...	55	...	57	68	55	68	82	64	80	95	75	94	112	86	108	129
26-0		...	...	...	...	52	63	...	63	76	59	73	88	69	87	104	79	99	119
27-0		...	...	...	...	...	58	...	59	71	55	68	82	64	80	97	73	91	110
28-0		...	...	...	...	...	54	...	54	65	...	63	76	60	75	90	80	85	102
29-0		...	...	...	...	...	...	...	...	61	...	59	71	56	70	84	63	79	95
30-0		...	...	...	...	...	...	...	...	57	...	55	66	...	65	78	59	74	89

Figures above Heavy Lines are Loads for which Unit Shear is over 60 lbs. per Square Inch.

8" Milcor Steel Domes + 2 1/2" Concrete

Safe Total Load Uniformly Distributed per Square Foot. 5" Joists — 25" O. C.

Weight per Square Foot of Slab Area = 55.0 Lbs. Concrete per Square Foot of Slab Area = .367 Cubic Feet. Shear Area = 54.7 Square Inches. Core Area of Section = 58.0 Per Cent.									fs = 18000 Lbs. per Sq. In. fc = 700 Lbs. per Sq. In. FOR STRESSES OF— fs = 16,000 Lbs. per Square Inch, and fc = 650 Lbs. per Square Inch,— USE 8/9 of values below.										
Area of Steel		.50 Square Inch			.614 Square Inch			.75 Square Inch			.88 Square Inch			1.04 Square Inch			1.20 Square Inch		
Bars } Str. } Bent		1-½" Square			1-⅝" Round 1-⅞" Round			1-⅝" Round 1-¾" Round			1-¾" Round 1-¾" Round			1-¾" Round 1-⅞" Round			1-⅞" Round 1-⅞" Round		
Span		WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12
10-0		241	301	362	293	366	440	360	450	540	418	523	628	495	620	...	565	...	...
11-0		199	249	300	243	304	364	298	372	446	346	432	518	409	510	613	467	585	...
12-0		167	209	251	204	255	306	250	312	375	290	363	436	344	430	517	394	492	...
13-0		143	178	214	173	216	260	213	266	320	248	310	372	294	366	440	336	420	505
14-0		123	154	184	149	187	224	183	229	275	213	267	320	253	316	380	290	362	435
15-0		107	134	161	130	163	195	160	200	240	186	232	279	220	276	331	252	315	380
16-0		94	118	141	115	143	172	140	176	211	163	204	245	194	242	291	222	277	333
17-0		84	104	125	101	127	152	124	156	187	145	181	217	171	215	258	197	245	295
18-0		74	93	112	91	113	136	111	139	167	129	161	194	153	191	230	175	219	263
19-0		67	84	100	81	102	122	100	125	150	116	145	174	137	172	206	157	196	236
20-0		60	75	91	75	92	110	90	112	135	105	131	157	124	155	186	142	177	213
21-0		...	68	82	67	83	100	82	102	122	95	119	143	112	141	169	129	161	194
22-0		...	62	75	61	76	91	75	93	112	87	108	130	102	128	154	117	146	176
23-0		...	57	69	55	69	83	68	85	102	79	99	119	94	117	141	107	134	161
24-0		...	...	63	51	64	77	63	78	94	73	91	109	86	108	129	99	123	148
25-0		...	...	58	...	58	76	58	72	87	67	84	100	80	100	119	91	114	136
26-0		...	...	...	...	...	65	...	67	80	62	77	93	73	92	110	84	105	126
27-0		...	...	...	...	...	60	...	62	74	58	72	86	68	85	102	78	98	117
28-0		...	...	...	...	...	56	...	58	69	...	67	80	63	79	95	73	91	109
29-0		...	...	...	...	...	...	...	...	64	...	62	75	...	74	89	68	84	101
30-0		...	...	...	...	...	...	...	...	60	...	58	70	...	69	83	63	79	95

Figures above Heavy Lines are Loads for which Unit Shear is over 60 lbs. per Square Inch.

Reinforced Concrete Design Tables

10" Milcor Steel Domes + 2" Concrete

Safe Total Load Uniformly Distributed per Square Foot. 5" Joists — 25" O. C.

Weight per Square Foot of Slab Area = 56.3 Lbs. Concrete per Square Foot of Slab Area = .376 Cubic Feet. Shear Area = 64.5 Square Inches. Core Area of Section = 62.4 Per Cent.										fs = 18000 Lbs. per Sq. In. fc = 700 Lbs. per Sq. In. FOR STRESSES OF — fs = 16,000 Lbs. per Square Inch, and fc = 650 Lbs. per Square Inch, — USE 8/9 of values below.									
Area of Steel		.614 Square Inch			.75 Square Inch			.88 Square Inch			1.04 Square Inch			1.20 Square Inch			1.38 Square Inch		
Bars { Str. Bent		1- $\frac{5}{8}$ " Round 1- $\frac{5}{8}$ " Round			1- $\frac{5}{8}$ " Round 1- $\frac{3}{4}$ " Round			1- $\frac{3}{4}$ " Round 1- $\frac{3}{4}$ " Round			1- $\frac{3}{4}$ " Round 1- $\frac{7}{8}$ " Round			1- $\frac{7}{8}$ " Round 1- $\frac{7}{8}$ " Round			1- $\frac{7}{8}$ " Round 1-1" Round		
Span		WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12
10-0		345	430	518	417	520	625	486	608	730	570	712	855	655	820	...	...	...	...
11-0		285	355	428	344	430	517	402	503	603	471	590	707	544	679	...	623	780	...
12-0		240	300	359	289	360	435	338	423	506	398	497	596	458	572	688	525	655	...
13-0		204	254	306	246	308	370	288	360	432	340	423	510	390	488	585	446	558	670
14-0		176	220	264	212	265	319	248	310	372	292	366	438	338	420	505	388	485	579
15-0		153	191	230	185	231	278	216	270	324	255	318	382	294	366	440	338	423	506
16-0		135	168	202	163	203	244	190	238	286	224	280	336	258	322	386	297	370	445
17-0		119	149	179	144	180	216	168	210	252	198	248	297	228	285	342	264	328	394
18-0		106	133	160	129	160	193	150	188	225	177	221	265	204	254	305	235	293	352
19-0		95	119	143	115	144	173	135	169	202	159	198	238	183	228	274	210	263	316
20-0		86	107	129	104	130	156	122	152	182	144	179	215	165	206	247	190	237	285
21-0		78	98	118	95	118	142	110	138	165	130	162	195	150	187	224	173	215	258
22-0		71	89	107	86	107	129	100	126	151	118	148	178	136	170	204	157	196	236
23-0		65	81	98	79	98	118	92	115	138	108	135	162	125	156	187	144	180	215
24-0		...	75	90	73	91	109	85	106	127	100	124	149	114	143	172	132	165	198
25-0		...	69	83	67	83	100	78	98	117	92	114	137	106	132	158	122	153	183
26-0		...	...	77	...	78	93	72	90	108	85	106	127	97	122	146	113	141	169
27-0		...	...	71	...	72	86	67	83	100	79	98	118	91	113	136	104	130	156
28-0		...	...	66	...	66	80	...	78	93	73	92	110	84	105	126	97	121	145
29-0		...	...	...	...	...	75	...	73	87	68	85	102	79	98	118	91	113	136
30-0		...	...	...	...	...	70	...	68	81	...	80	96	74	92	110	85	106	127

Figures above Heavy Lines are Loads for which Unit Shear is over 60 lbs. per Square Inch.

10" Milcor Steel Domes + 2 $\frac{1}{2}$ " Concrete

Safe Total Load Uniformly Distributed per Square Foot. 5" Joists — 25" O. C.

Weight per Square Foot of Slab Area = 62.3 Lbs. Concrete per Square Foot of Slab Area = .417 Cubic Feet. Shear Area = 67.5 Square Inches. Core Area of Section = 60.0 Per Cent.										fs = 18000 Lbs. per Sq. In. fc = 700 Lbs. per Sq. In. FOR STRESSES OF — fs = 16,000 Lbs. per Square Inch, and fc = 650 Lbs. per Square Inch, — USE 8/9 of values below.									
Area of Steel		.614 Square Inch			.75 Square Inch			.88 Square Inch			1.04 Square Inch			1.20 Square Inch			1.38 Square Inch		
Bars { Str. Bent		1- $\frac{5}{8}$ " Round 1- $\frac{5}{8}$ " Round			1- $\frac{5}{8}$ " Round 1- $\frac{3}{4}$ " Round			1- $\frac{3}{4}$ " Round 1- $\frac{3}{4}$ " Round			1- $\frac{3}{4}$ " Round 1- $\frac{7}{8}$ " Round			1- $\frac{7}{8}$ " Round 1- $\frac{7}{8}$ " Round			1- $\frac{7}{8}$ " Round 1-1" Round		
Span	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	
10-0	361	451	542	436	545	655	510	637	765	600	750	900	687	862	...	795	...	...	
11-0	298	373	447	360	450	540	422	525	632	495	620	745	570	712	...	657	815	...	
12-0	251	313	376	303	378	455	354	442	530	417	521	625	476	595	715	552	688	...	
13-0	214	266	320	258	322	387	301	376	452	355	443	533	408	510	612	470	585	705	
14-0	184	230	276	222	278	334	260	325	390	306	382	458	352	440	528	405	505	606	
15-0	160	200	241	194	242	291	226	283	340	266	333	400	306	383	460	353	440	530	
16-0	141	176	211	170	213	256	199	249	299	234	292	352	269	337	405	310	387	465	
17-0	125	156	188	151	188	226	176	220	264	208	259	312	238	298	358	275	343	412	
18-0	111	139	167	135	168	202	157	197	236	185	231	278	213	266	320	245	306	368	
19-0	100	125	150	121	151	181	141	177	212	166	208	249	191	238	287	220	275	330	
20-0	90	113	135	109	136	163	128	159	191	150	187	225	172	215	259	198	248	298	
21-0	82	102	123	99	124	148	115	144	173	136	170	204	156	196	235	180	224	270	
22-0	75	93	112	91	113	135	105	132	158	124	155	186	142	178	214	164	205	246	
23-0	68	86	102	83	103	124	97	121	144	113	142	170	130	163	196	150	187	224	
24-0	...	79	94	76	95	114	89	111	133	104	130	156	120	150	180	138	172	206	
25-0	...	72	87	70	87	105	82	102	122	96	120	144	100	138	166	127	159	190	
26-0	...	67	80	...	81	97	76	95	113	89	111	133	102	128	153	118	147	176	
27-0	...	...	75	...	75	90	70	88	105	83	103	124	95	118	142	109	136	163	
28-0	...	...	69	...	70	84	...	82	98	77	96	115	88	110	132	101	126	152	
29-0	...	...	...	...	...	78	...	76	91	72	89	107	82	102	123	95	118	141	
30-0	...	...	...	...	...	73	...	71	85	...	84	100	77	96	115	88	110	132	

Figures above Heavy Lines are Loads for which Unit Shear is over 60 lbs. per Square Inch.

Reinforced Concrete Design Tables

12" Milcor Steel Domes + 2" Concrete

Safe Total Load Uniformly Distributed per Square Foot. 5" Joists — 25" O. C.

Weight per Square Foot of Slab Area = 62.0 Lbs. Concrete per Square Foot of Slab Area = .414 Cubic Feet. Shear Area = 75.0 Square Inches. Core Area of Section = 64.6 Per Cent.									fs = 18000 Lbs. per Sq. In. fc = 700 Lbs. per Sq. In. FOR STRESSES OF — fs = 16,000 Lbs. per Square Inch, and fc = 650 Lbs. per Square Inch, — USE 8/9 of values below.								
Area of Steel			.88 Square Inch			1.04 Square Inch			1.20 Square Inch			1.38 Square Inch			1.57 Square Inch		
Span	Straight	Bent	1-3/4" Round			1-3/4" Round			1-7/8" Round			1-7/8" Round			1-1" Round		
			WL	WL	WL	WL	WL	WL	WL	WL	WL	WL	WL	WL	WL	WL	WL
			8	10	12	8	10	12	8	10	12	8	10	12	8	10	12
12-0			400	500	598	472	590	708	545	680	815	625	780	...	700	875	...
13-0			340	425	510	403	503	603	463	580	695	533	665	800	600	745	...
14-0			292	366	440	346	433	520	400	500	600	460	575	690	515	644	...
15-0			255	319	383	302	378	453	348	435	522	400	500	600	450	560	675
16-0			224	280	337	266	332	398	306	382	458	352	440	528	395	492	592
17-0			198	248	298	233	294	350	271	338	406	310	390	467	350	435	525
18-0			177	222	266	210	262	313	242	302	362	278	347	417	312	389	468
19-0			159	199	238	188	235	282	217	271	325	249	312	374	280	350	420
20-0			144	180	215	170	212	255	196	244	294	224	281	337	253	315	380
21-0			130	163	195	154	192	231	178	222	266	204	255	306	229	286	344
22-0			119	148	178	140	175	211	162	202	242	186	232	279	209	260	313
23-0			109	136	163	129	160	193	148	185	222	170	212	255	191	238	286
24-0			100	124	149	118	148	177	136	170	204	156	195	234	175	219	263
25-0			92	115	138	109	136	163	125	157	188	144	180	216	162	202	242
26-0			85	106	127	101	126	151	116	145	174	133	166	200	150	186	224
27-0			79	99	118	94	117	140	107	134	161	123	154	186	139	173	208
28-0			73	92	110	87	108	130	100	125	150	115	144	172	129	161	193
29-0			68	85	102	81	101	121	93	116	139	107	134	160	120	150	180
30-0			...	80	96	75	94	113	87	109	130	100	125	150	112	140	168
31-0			...	75	90	71	88	106	81	102	122	94	117	140	105	131	157
32-0			...	70	84	...	83	99	76	95	114	88	110	132	98	123	148
33-0			...	...	79	...	78	94	72	90	108	83	103	124	93	116	139
34-0			...	...	74	...	73	88	68	85	102	78	97	117	88	109	131
35-0			...	...	70	...	69	83	...	80	96	73	92	110	82	103	124

Figures above Heavy Lines are Loads for which Unit Shear is over 60 lbs. per Square Inch.

12" Milcor Steel Domes + 2 1/2" Concrete

Safe Total Load Uniformly Distributed per Square Foot. 5" Joists — 25" O. C.

Weight per Square Foot of Slab Area = 68.0 Lbs. Concrete per Square Foot of Slab Area = .455 Cubic Feet. Shear Area = 78.5 Square Inches. Core Area of Section = 62.5 Per Cent.									fs = 18000 Lbs. per Sq. In. fc = 700 Lbs. per Sq. In. FOR STRESSES OF — fs = 16,000 Lbs. per Square Inch, and fc = 650 Lbs. per Square Inch, — USE 8/9 of values below.								
Area of Steel			.88 Square Inch			1.04 Square Inch			1.20 Square Inch			1.38 Square Inch			1.57 Square Inch		
Span	Straight	Bent	1-3/4" Round			1-3/4" Round			1-7/8" Round			1-7/8" Round			1-1" Round		
			WL	WL	WL	WL	WL	WL	WL	WL	WL	WL	WL	WL	WL	WL	WL
			8	10	12	8	10	12	8	10	12	8	10	12	8	10	12
12-0			415	518	620	490	612	735	562	705	843	645	810	...	730	910	...
13-0			352	441	530	417	522	625	478	600	718	550	690	825	620	778	...
14-0			304	380	456	360	450	540	413	517	620	475	595	715	535	670	805
15-0			265	331	397	313	392	470	360	450	540	415	520	622	465	585	700
16-0			233	291	349	276	345	413	316	396	475	364	455	545	410	513	615
17-0			206	258	309	244	305	366	280	350	420	322	405	484	364	455	545
18-0			184	230	276	218	272	327	250	312	375	288	360	432	324	405	485
19-0			165	206	248	196	244	294	224	280	336	258	323	388	290	364	435
20-0			149	186	224	177	220	265	202	253	304	233	291	350	262	328	395
21-0			135	169	202	160	200	240	183	229	275	211	265	317	238	298	358
22-0			123	154	185	146	182	219	167	209	251	192	241	289	216	272	325
23-0			113	141	169	133	167	200	153	192	229	176	221	265	198	248	298
24-0			103	129	155	122	153	184	140	176	211	162	202	242	182	228	273
25-0			95	119	143	113	141	170	129	162	194	149	186	224	168	210	252
26-0			88	110	132	104	130	157	120	150	180	138	173	207	155	195	233
27-0			82	102	123	97	121	145	111	139	167	128	160	192	144	180	216
28-0			76	95	114	90	112	135	103	129	155	119	149	178	134	168	201
29-0			...	89	106	84	105	126	96	120	144	111	139	166	125	156	187
30-0			...	83	99	78	98	118	90	112	135	103	130	155	117	146	175
31-0			...	78	93	73	92	110	84	105	126	97	121	145	109	137	164
32-0			...	73	87	...	86	103	79	99	118	91	114	136	102	128	153
33-0			...	...	82	...	81	97	74	93	111	85	107	128	96	121	145
34-0			...	...	77	...	76	92	...	87	105	80	101	121	91	114	136
35-0			...	...	...	...	...	87	...	83	99	76	95	114	85	107	128

Figures above Heavy Lines are Loads for which Unit Shear is over 60 lbs. per Square Inch.

Reinforced Concrete Design Tables

14" Milcor Steel Domes + 2 1/2" Concrete

Safe Total Load Uniformly Distributed per Square Foot. 5" Joists—25" O. C.

Weight per Square Foot of Slab Area = 78.4 Lbs. Concrete per Square Foot of Slab Area = .523 Cubic Feet. Shear Area = 104.0 Square Inches Core Area of Section = 61.9 Per Cent.									fs = 18000 Lbs. per Sq. In. fc = 700 Lbs. per Sq. In. FOR STRESSES OF — fs = 16,000 Lbs. per Square Inch, and fc = 650 Lbs. per Square Inch, — USE 8/9 of values below						
Area of Steel	.88 Square Inch			1.04 Square Inch			1.20 Square Inch			1.38 Square Inch			1.57 Square Inch		
Bars { Straight Bent	1-3/4" Round 1-3/4" Round			1-3/4" Round 1-7/8" Round			1-7/8" Round 1-7/8" Round			1-7/8" Round 1-1" Round			1-1" Round 1-1" Round		
Span	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12
15-0	305	380	458	360	451	540	415	518	622	475	595	715	535	670	805
16-0	268	335	403	318	394	474	364	455	545	418	523	626	472	590	707
17-0	238	296	357	280	350	420	322	404	483	372	464	555	417	522	625
18-0	212	264	318	250	314	375	288	360	430	332	414	495	372	465	558
19-0	190	238	285	225	281	336	258	323	386	297	371	445	335	417	502
20-0	171	214	257	202	254	305	233	292	350	268	335	402	302	377	453
21-0	155	194	233	184	230	275	211	264	318	244	304	365	274	342	410
22-0	142	177	212	168	210	252	192	241	289	222	277	333	249	311	374
23-0	130	162	195	154	192	229	176	219	263	201	253	303	228	285	342
24-0	119	148	179	141	176	212	162	202	243	186	234	280	209	261	314
25-0	110	137	165	130	163	195	149	187	224	172	217	258	193	241	290
26-0	101	127	152	120	150	180	138	172	207	159	198	238	178	223	268
27-0	94	118	141	111	140	167	128	160	192	147	184	221	165	207	248
28-0	88	109	131	104	130	155	119	149	178	137	171	205	154	192	231
29-0	...	102	122	96	121	145	111	138	166	127	159	192	143	179	215
30-0	...	95	114	90	113	135	103	129	155	119	149	179	134	167	201
31-0	...	89	107	...	105	127	97	121	145	111	139	167	125	156	188
32-0	...	...	100	...	99	119	91	114	137	105	131	157	119	147	178
33-0	...	...	94	...	93	112	85	107	128	98	123	148	110	138	166
34-0	...	...	89	...	88	105	...	101	121	93	116	139	104	130	157
35-0	...	...	84	...	...	100	...	95	114	87	109	131	98	123	148
36-0	...	...	...	...	...	94	...	90	108	...	103	124	93	116	140
37-0	...	...	...	...	...	89	...	85	102	...	98	117	88	110	132
38-0	...	...	...	...	...	...	...	...	97	...	93	111	...	104	126
39-0	...	...	...	...	...	...	...	...	92	...	88	105	...	99	119
40-0	...	...	...	...	...	...	...	...	87	...	...	100	...	94	113

Figures above Heavy Lines are Loads for which Unit Shear is over 60 lbs. per Square Inch

14" Milcor Steel Domes + 3" Concrete

Safe Total Load Uniformly Distributed per Square Foot. 5" Joists—25" O. C.

Weight per Square Foot of Slab Area = 84.8 Lbs. Concrete per Square Foot of Slab Area = .565 Cubic Feet. Shear Area = 108.0 Square Inches Core Area of Section = 60.0 Per Cent									fs = 18000 Lbs. per Sq. In. fc = 700 Lbs. per Sq. In. FOR STRESSES OF — fs = 16,000 Lbs. per Square Inch, and fc = 650 Lbs. per Square Inch, — USE 8/9 of values below.						
Area of Steel	1.20 Square Inch			1.38 Square Inch			1.57 Square Inch			1.78 Square Inch			2.00 Square Inch		
Bars { Straight Bent	1-7/8" Round 1-7/8" Round			1-1" Round 1-7/8" Round			1-1" Round 1-1" Round			1-1" Round 1-1" Round			1-1" Round 1-1" Round		
Span	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12	WL 8	WL 10	WL 12
15-0	425	534	640	493	615	738	555	693	835	635	793	950	700	885	...
16-0	374	470	562	433	540	650	488	610	733	558	697	835	625	782	935
17-0	332	415	498	383	480	575	432	540	650	493	617	738	554	692	830
18-0	296	370	445	341	427	512	385	484	580	442	550	660	494	617	740
19-0	266	332	400	307	385	460	345	433	520	394	492	590	443	553	663
20-0	240	300	360	277	346	415	312	392	470	357	445	533	400	500	600
21-0	217	272	327	251	314	376	283	354	425	322	403	483	362	451	541
22-0	198	248	298	229	286	343	258	322	388	295	368	442	330	413	495
23-0	181	227	272	209	262	314	235	295	354	270	337	403	301	376	452
24-0	166	208	250	192	240	288	216	270	325	248	310	372	277	347	415
25-0	153	192	230	177	222	265	199	250	299	228	285	342	256	320	384
26-0	142	177	213	163	205	245	184	230	277	211	264	317	236	296	355
27-0	132	165	198	152	190	228	171	214	257	196	245	294	220	276	330
28-0	122	153	184	141	176	212	159	199	238	182	228	274	204	255	306
29-0	114	142	171	131	165	197	148	185	222	169	212	254	192	240	288
30-0	106	133	160	123	153	184	138	173	208	159	198	238	178	222	267
31-0	100	125	150	115	144	172	130	162	194	148	185	223	166	208	250
32-0	93	117	141	108	135	162	123	152	184	139	176	208	156	195	234
33-0	...	110	132	101	127	152	114	143	172	131	162	196	146	183	220
34-0	...	104	125	96	120	143	108	134	162	123	154	185	138	173	208
35-0	...	98	117	...	113	135	102	127	154	116	145	175	130	163	196
36-0	...	93	111	...	107	128	96	120	144	110	137	165	123	154	185
37-0	...	...	105	...	101	121	...	114	136	104	130	156	117	146	175
38-0	...	...	100	...	95	115	...	107	129	99	123	148	111	138	166
39-0	...	...	94	...	...	109	...	102	123	94	117	140	105	131	157
40-0	...	...	...	...	...	104	...	98	117	...	111	134	100	125	150

Figures above Heavy Lines are Loads for which Unit Shear is over 60 lbs. per Square Inch



Look for the lettering: "Milcor Expansion Corner Bead (Pat'd. June 13, 1922)" which is stamped on the side of each Bead. Demand the genuine. Refuse imitations.

No. 1 Milcor Expansion Corner Bead for outer or exposed angles. Fabricated from No. 26 Gauge and No. 24 Gauge Tight Coat Galvanized Steel or ARMCO Ingot Iron. Lengths of 6, 7, 8, 9, 10, 11 and 12 feet. Weight per 1,000 feet, No. 26 Gauge, 230 lbs. crated, No. 24 Gauge 300 lbs. Packed approximately 500 and 1000 ft. to the crate. Patented June 13, 1922.

MILCOR Patented "Expansion" Corner Bead

TRULY a great achievement is the perfection of these unique products invented by Milcor Engineers. The following exclusive features, found only in Milcor Expansion Corner Bead, are particularly appreciated by Architects, Engineers, Building Contractors and Owners:

1. The narrow nose permits an artistic arris.
2. The corner itself is permanent and the walls on each side are ideally reinforced by the mesh of Expanded Metal on each side of the solid nose of the Milcor Expansion Corner Bead.
3. Precisely straight-line corners are certain.
4. Due to savings in labor-cost of erection, the use of these efficient Expansion Corner Beads actually results in economies in construction.

Expansion Wings are Patented and exclusively Milcor. Beware of imitations.

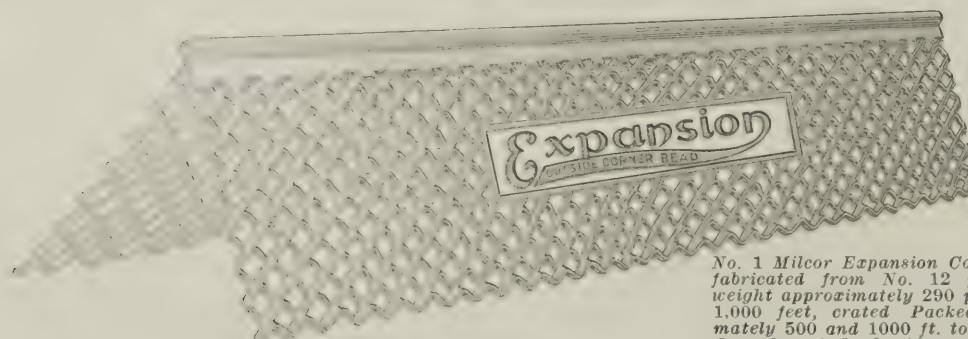
The bead is drawn like a wire in this modern Milcor Expansion Product, assuring constant ac-

curacy and precision in shape. Beginning almost at the base of the bead, the network of Diamond-shaped Expanded Metal Wings permits keying of the mortar right up to the actual corner. This eliminates danger of plaster checking off or cracking, due to blows or other abuse.

Real economies are possible in labor cost through the simplicity of handling Milcor Expansion Corner Bead. It can be wired, stapled, nailed or "stuck" to any kind of wall construction, without the use of clips. It permits the saving of much time as compared with old style corner beads erected under old methods.

The force shocks or blows is dissipated by the network of expanded metal which also prevents cracking of plaster at the particularly vulnerable points—at outer and inner corners.

Contractors are enthusiastic in their approval of Milcor Expansion Corner Bead. McNulty Brothers Company, of Chicago, who plastered



No. 1 Milcor Expansion Corner Bead fabricated from No. 12 pure zinc, weight approximately 290 pounds per 1,000 feet, crated Packed approximately 500 and 1000 ft. to the crate. Lengths of 8, 9, 10 and 12 feet. Patented June 13, 1922.

Patented
June 13, 1922



No. 1 Milcor Expansion Corner Bead fabricated from 16-oz. Cold Rolled Copper, weight approximately 230 pounds per 1,000 feet, crated. Packed approximately 500 and 1000 ft. to the crate. Lengths of 8, 9, 10 and 12 feet. In crates of approximately 500 feet.

the First National Bank Building at Detroit, wrote us that they had—

"erected 80,000 lineal feet of Expansion Corner Bead in this building and are pleased to say that the additional cost of this bead compared with other types of Beads is fully offset by the cheaper cost of erection."

They have since installed millions of feet of Expansion Bead. Many of the world's finest structures, such as The Strauss Bldg., Morrison Hotel, New Palmer House, New Sherman and Stevens Hotels, Chicago; Roosevelt Hotel, New York; Bell Telephone Bldg., Philadelphia, and many others are protected with Milcor Expansion Corner Bead.

Meech and Arnold, St. Joseph, Michigan, Plastering Contractors, point out a saving of about 30% through the use of Expansion Bead.

Ernst Jahn & Sons Lathing & Plastering Corp., Milwaukee, one of the foremost plastering

contractors in the Northwest, who recently completed the plastering work on the \$3,500,000 Schroeder Hotel, Milwaukee, wrote us on March 6, 1928 as follows:—

"We have found from experience in using Milcor 'Expansion' Corner Bead almost exclusively that we have been able to effect savings in the erection of it as compared with erection costs of ordinary bead. Also, that a better job is obtainable, owing to the expansion feature and that the initial increase of cost is offset by the savings effected in erection."

Milcor Expansion Corner Bead No. 1 is for outer or exposed corners. Expansion Bead No. 2 is for inner corners and ceiling angles.

To guard against electrolytic corrosion, copper nails or staples must be used with Milcor Copper Expansion Corner Bead and Galvanized Nails or Staples must be used with Milcor Zinc Expansion Corner Bead. Permanent contact of copper with zinc or galvanized metal must be avoided.

Methods of Fastening Milcor Expansion Corner Beads

They can be stapled, nailed, wired or stuck in place.

On tile and concrete, much time is ordinarily wasted in locating mortar joints or soft spots for nails to coincide with holes in the old-fashioned beads. There is none of this lost time with Milcor Expansion

Corner Bead, with its multitude of openings.

For erecting corner beads we furnish our Expansion Bead Setter. This is a combined level and straight edge and by its use the amount of bead set in one day may be tripled.



No. 2 Milcor Expansion Corner Bead for inner angles. Fabricated from No 26 Gauge Tight Coat Galvanized Steel or ARMCO Ingot Iron. Lengths of 8, 9, 10 and 12 feet. Weight per 1,000 feet, 230 lbs., crated. In crates of 500 or 1000 ft.

Patented
June 13, 1922.



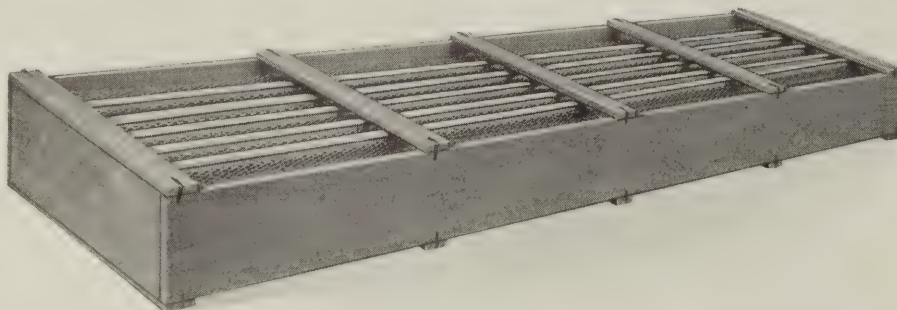
Special Patented Expansion Corner Bead No. 1 with One Narrow Wing

OVER windows that extend close up to the ceiling, in plaster-reveal work, it would not be practical to use Expansion Corner Bead No. 1 with standard width wings on both sides. For such conditions we are in posi-

tion to furnish a special bead with ONE NARROW WING, as shown above. The narrow wing is furnished in the following widths: 1", 1¼", 1½", 1¾", 2", 2¼" and 2½".

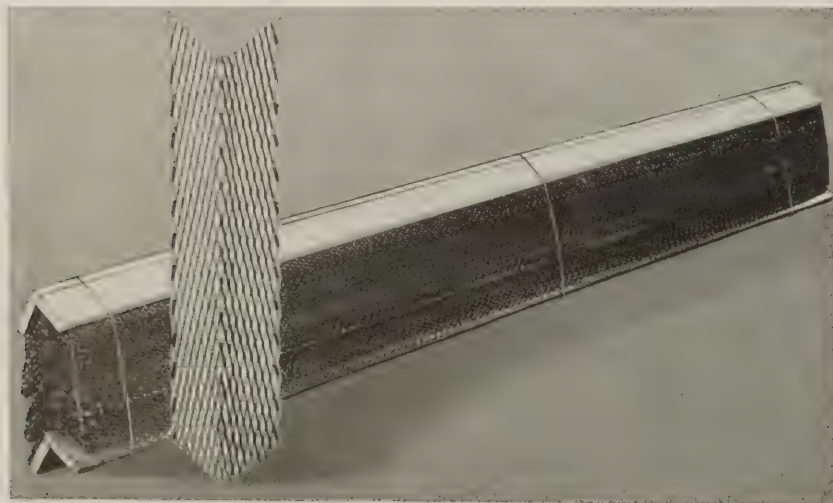
Safe Crates

ALL MILCOR Expansion Corner Bead (Nos. 1, 2, and 10) are neatly and securely packed in heavy wooden cases. This ultra-safe packing precludes any possibility of damage in



transit or on the job. The beads come to you precisely straight and true.

Corner Lath for Inner Corners & Ceiling Angles



MILCOR Corner Lath consists of strips of NETMESH lath formed to right angle, for use on all corners with wood lath or for inner corners and ceiling angles, on jobs where Expansion Corner Bead No. 2 (for inner angles) is not used.

Length 8 ft., wings 3 in. (Also made with 4-in. wings.) Safely crated shipment as illustrated at left.

The edges are finished like Expansion Corner Bead—No rough, ragged edges.

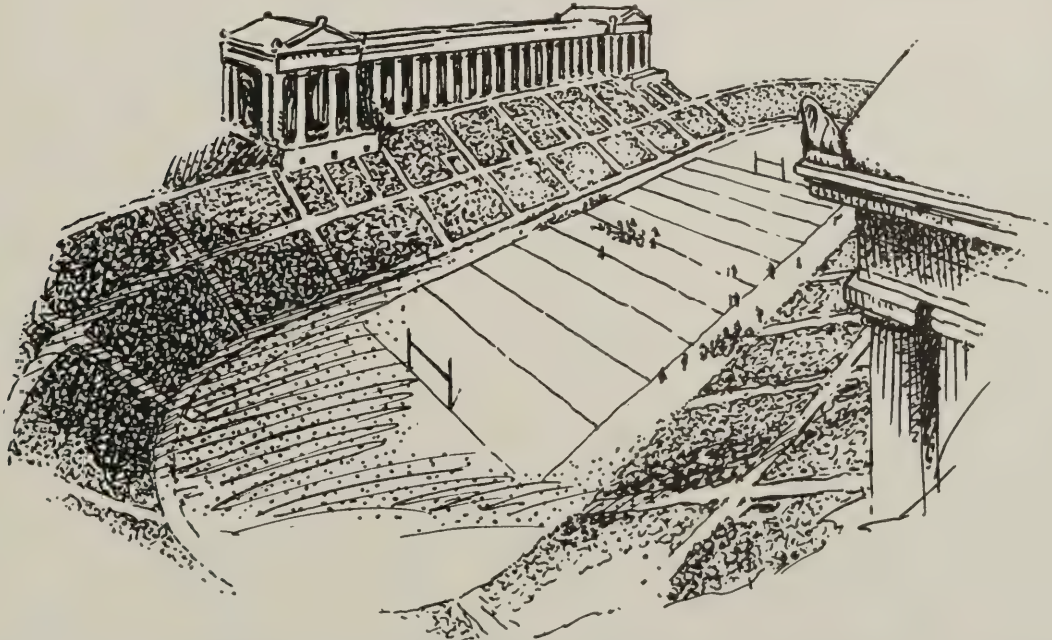
MILCOR PRODUCTS USED THROUGHOUT THESE BUILDINGS



*St. Joseph Hospital, Ottumwa, Iowa—E. Brielmaier & Sons, Milwaukee, Architects
G. D. Cota, Mason City, Iowa, Plastering Contractor.*

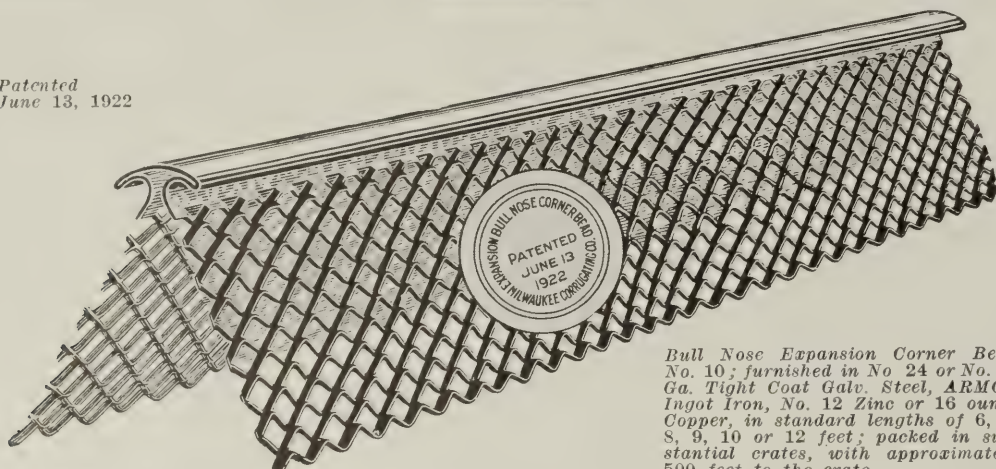


Group of homes at Chariton, Iowa in which Milcor Products were used in every conceivable way by the Chariton Supply Co., builders.



Stadium, Soldiers' Field, Chicago—scene of Dempsey-Tunney fight, Army-Navy football game and other internationally famous events. In the halls beneath the stands Milcor Products were used.

Patented
June 13, 1922



Bull Nose Expansion Corner Bead No. 10; furnished in No. 24 or No. 26 Ga. Tight Coat Galv. Steel, ARMCO Ingot Iron, No. 12 Zinc or 16 ounce Copper, in standard lengths of 6, 7, 8, 9, 10 or 12 feet; packed in substantial crates, with approximately 500 feet to the crate.

BULL NOSE "Expansion" Corner Bead No. 10

EVER since Milcor introduced its now-famous "Expansion" Corner Beads No. 1 and No. 2, many architects, contractors and plasterers have urged us to develop a BULL NOSE Corner Bead with similar expanded metal wings and all the advantages that have made Expansion Corner Beads so popular.

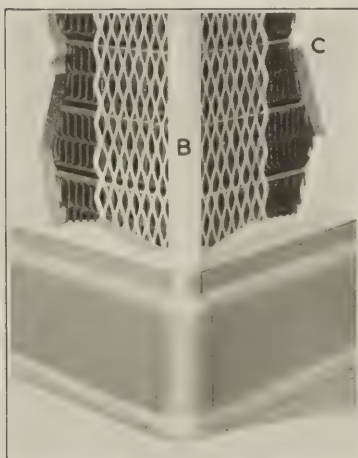
Milcor engineers have carried this idea through to a successful conclusion and have perfected the new BULL NOSE "Expansion" Corner Bead No. 10, which now takes its place along with the other successful items in the Expansion Line.

"Expansion" BULL NOSE Corner Bead No. 10 has the same advantages as the narrow nose regular "Expansion" Corner Bead No. 1 and both are covered by the same patents, June 13, 1922.

The expanded metal wings are $2\frac{3}{4}$ " wide; the heavy 1-inch nose is curved to a $\frac{3}{4}$ -inch radius; the bead is precisely straight and true; no other corner bead is made this way—and no other *can* be!

Bull Nose "Expansion" Corner Bead No. 10 is ideal for Hospitals, Hotels, Institutions, Schools, Homes, etc., where broad, heavy, curved corners are desired for sanitary conditions, for pleasing appearance, and for supreme protection of plastered walls against heavy furniture, carts, wheel chairs, and other objects which are moved frequently.

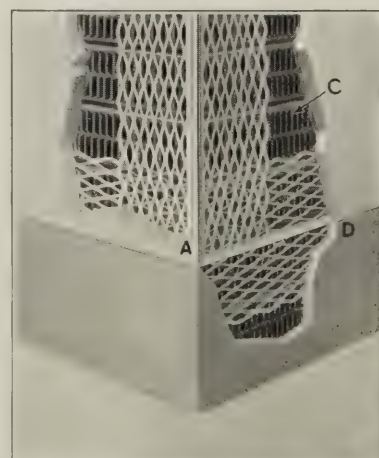
We shall be glad to send samples of Bull Nose "Expansion" Corner Bead No. 10 and "Expansion" Corner Bead No. 1, or any other "Expansion" Products, without cost or obligation to you. Milcor dealers have complete panels of samples on display.



At Left: Corner showing BULL NOSE "Expansion" Corner Bead No. 10 in position in plastered wall, with portion of base exposed to show: "B", the exposed solid bull nose of the bead and its expanded metal wings; and "C", Stay-Rib Metal Lath No. 1. Metal Cove Base No. 112 and Cove Base Corner No. 112-C are also shown here.



At Right: Corner showing "Expansion" Corner Bead No. 1 in position in plastered wall, with portion of base exposed to show: "A", narrow nose of bead with its expanded metal wings; and "C", Stay-Rib Metal Lath No. 1. For other adaptations of Bull Nose "Expansion" Corner Bead No. 10, see pages 79 and 80.



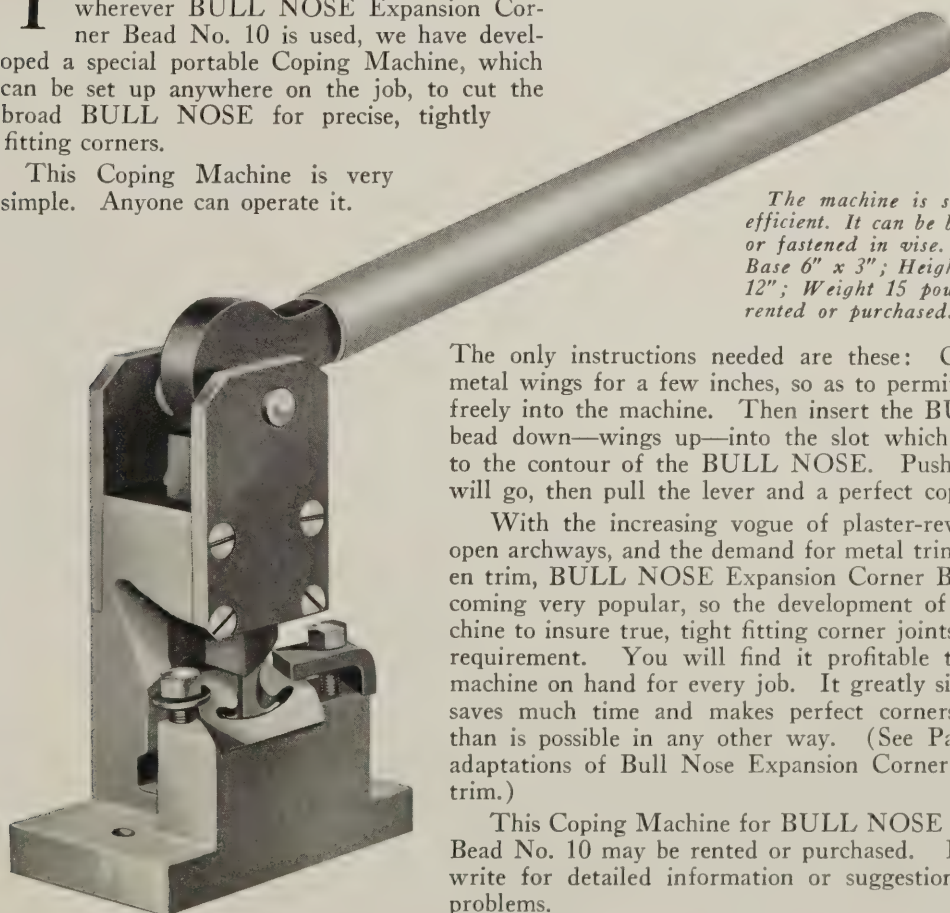


Coping Machine for Bull Nose Expansion Corner Bead No. 10

TO facilitate the proper fitting of corners, wherever BULL NOSE Expansion Corner Bead No. 10 is used, we have developed a special portable Coping Machine, which can be set up anywhere on the job, to cut the broad BULL NOSE for precise, tightly fitting corners.

This Coping Machine is very simple. Anyone can operate it.

The machine is small, compact, efficient. It can be bolted to bench or fastened in vise. Dimensions—Base 6" x 3"; Height 5½"; Lever 12"; Weight 15 pounds. May be rented or purchased.



The only instructions needed are these: Clip the expanded metal wings for a few inches, so as to permit the nose to slide freely into the machine. Then insert the BULL NOSE with bead down—wings up—into the slot which conforms exactly to the contour of the BULL NOSE. Push it in as far as it will go, then pull the lever and a perfect cope will be cut.

With the increasing vogue of plaster-reveal windows and open archways, and the demand for metal trim instead of wooden trim, BULL NOSE Expansion Corner Bead No. 10 is becoming very popular, so the development of this Coping Machine to insure true, tight fitting corner joints, meets an urgent requirement. You will find it profitable to have this little machine on hand for every job. It greatly simplifies the work, saves much time and makes perfect corners with less effort than is possible in any other way. (See Pages 79 to 81 for adaptations of Bull Nose Expansion Corner Bead as window trim.)

This Coping Machine for BULL NOSE Expansion Corner Bead No. 10 may be rented or purchased. Do not hesitate to write for detailed information or suggestions on any specific problems.



No. 6 O. G. Expansion Casing, fabricated from Tight Coat Galvanized Open-Hearth Steel, or ARMCO Ingot Iron. Lengths of 6, 7, 7½, 8, 9, 10 and 12 feet. Weight per 500 feet crated, 175 lbs. Patented June 13, 1922, and Jan. 26, 1926.

MILCOR Pat'd Expansion Casings

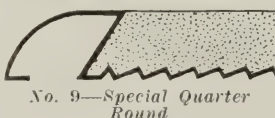
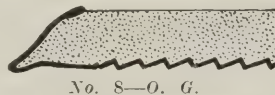
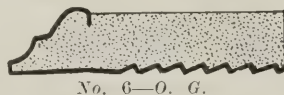
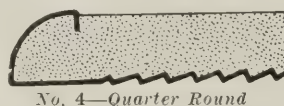
ARTISTIC, sanitary, fire-safe and economical, Milcor metal casings certainly have important advantages over old-fashioned wooden casings.

Before the invention of Milcor "Expansion" Casings there were serious drawbacks to the use of the old-type solid metal casings.

Extending in under the plaster, the flat solid surface of the ordinary metal casing provided no grip-hold for the plaster. Consequently, as the plaster dried out, it slipped away from the metal and cleavage-cracks were almost certain to show up along those lines where plaster and casing meet.

Milcor Expansion Casings, however, with their *Expanded* metal wings, provide the means for a close and permanent bond

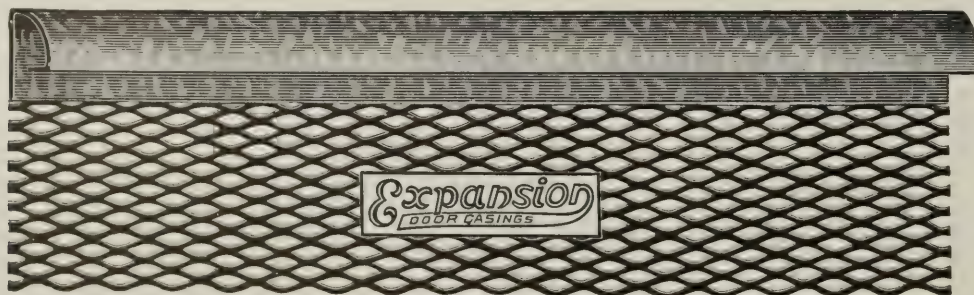
which eliminates any possibility of cleavage-cracks developing at the junction of plaster and casing.



The practical features of Milcor Expansion Casings are many. The architectural effects possible with this modern building product are accepted as artistically correct, the last word in style and "good taste." The initial cost, compared with hardwood casings, represents some saving, and the labor cost for installation is considerably reduced.

The remarkable plaster-gripping qualities of the wings of Milcor Expansion Casings, greatly strengthen and reinforce the wall.

The flush, tight junction of the wall and casing forms a sanitary feature of much importance — a feature found exclusively in Milcor Expansion Casings. And, of



No. 4, ¼-Round Expansion Casing, fabricated from Tight-Coat Galvanized Open Hearth Steel, or ARMCO Ingot Iron. Lengths of 6, 7, 7½, 8, 9, 10 and 12 feet. Weight per 500 feet crated, 175 lbs. Patented June 13, 1922, and Jan. 26, 1926.



No. 6 O. G. Expansion Casing, fabricated from No. 12 Pure Zinc. Lengths of 6, 7, 7½, 8, 9, 10 and 12 feet. Weight per 500 feet, 185 lbs. Patented June 13, 1922, and Jan. 26, 1926.

course, the firesafeness of these Casings is another of their highly practical advantages.

Four styles of Molding are available. Each style is conservative and simple in its design and gives a rare touch of reserved, inconspicuous beauty to the rooms where it is used as door and window-trim. The four styles are:

No. 4, ¼-Round; No. 6 O. G., No. 8 O. G., and No. 9 Special, ¼ Rd. Notice the profile drawings, page 68, indicating the shape of each.

No. 8, O. G., and No. 9 Special, ¼ Rd., fabricated from 24 Gauge, Tight Coat Galvanized Open Hearth Sheets only. Length of 6, 7, 7½, 8, 9, 10 and 12 feet. Weight per 500 feet, 200 lbs., crated.

Milcor Expansion Door and Window Casings are furnished in three types:

Cut from Tight Coat Galvanized, Open-Hearth Steel, or ARMCO Ingot Iron.

Cut from No. 12 Pure Zinc.

Cut from 16 oz. Cold Rolled Copper.

Zinc and copper casings are made to order only—approximately 30 days required for shipment.

There is nothing that can take the place of the Milcor Expansion Line in the attainment of choice artistic effects, beautiful simplicity of finish, practical durability and perfect utility. Their conception marks a real advance in an era demanding permanence and firesafeness in building methods and materials.

Patented Expansion Casing Lock, or Clip

See Illustration on Next Page

THE Milcor Casing Clip was designed to lock Milcor Casings firmly upon the jamb, to prevent any possibility of the casings opening away to the slightest degree from the door or window jamb.

Expansion Casings are punched with 7/16-inch round holes, 3 inches center to center. Clips are customarily used, however, no closer than 12 inches center to center. Round-head screws, ¾-inch No. 10

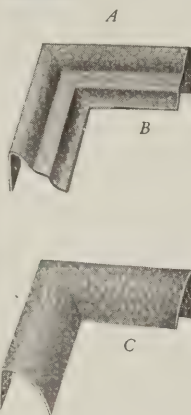


No. 4, ¼-Round Expansion Casing, fabricated from Pure 16-oz. Cold Rolled Copper. Lengths of 6, 7, 7½, 8, 9, 10 and 12 feet. Weight per 500 feet, 175 lbs., crated. Patented June 13, 1922, and Jan. 26, 1926.



Patented June 13, 1922
and Jan. 26, 1926

- A—Showing Under
Side of Clip.
B—No. 6, O. G.
One-Piece Mitre.
C—No. 4, ¼-Round
One-Piece Mitre.



or No. 12, are driven into the permanent jamb just far enough so that the heads project about $\frac{1}{8}$ inch. After all the screws are thus lined up, the casing is slipped over the screw heads. The Casing is properly aligned and nailed to the buck; then the Clips are slipped between the screw head and the Casing. The Clips are then driven home with a nail-set and hammer, chisel-edge or any handy tool, thus locking the edge of the casing securely down on the jamb.

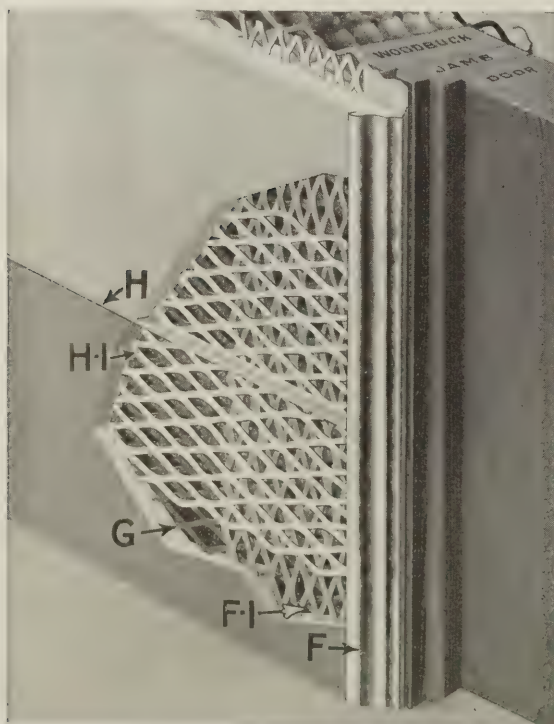
Furnished as follows:

Stamped from Tight Coat Galvanized, Open-Hearth Sheets. Weight per thousand, 15 pounds. Packed in cartons of 1000.

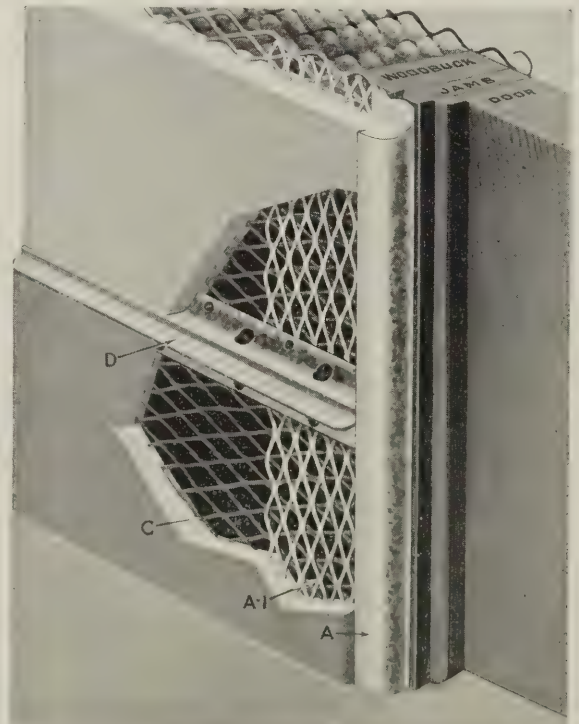
One-Piece Mitres

These Milcor One-Piece Mitres aid the workmen to make true mitre-joints and serve to strongly reinforce the joints. They slip *inside* the casings and are entirely hidden from sight. Even though casings might tend to pull away because of settlement or shrinkage of the wood, Milcor Mitres would still hold joints in presentable condition. Made for No. 4, No. 6 and No. 9 Expansion Casings only.

Stamped in one piece from Tight Coat Galvanized Open-Hearth Steel. Weight 80 lbs. per thousand.



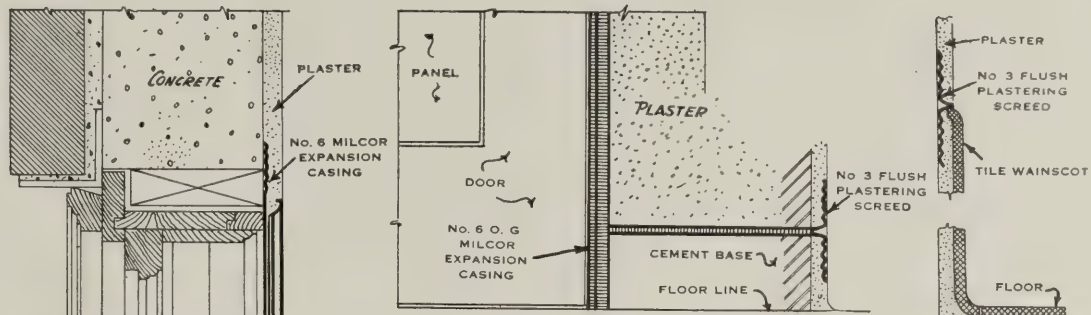
Details of No. 6, O. G. Expansion Door Casing, with No. 3 Expansion Flush Plastering Screed and Netmesh Lath.



Details of No. 4, ¼-Round Expansion Casing with Milcor Curved Point Base Screed and Netmesh Lath.

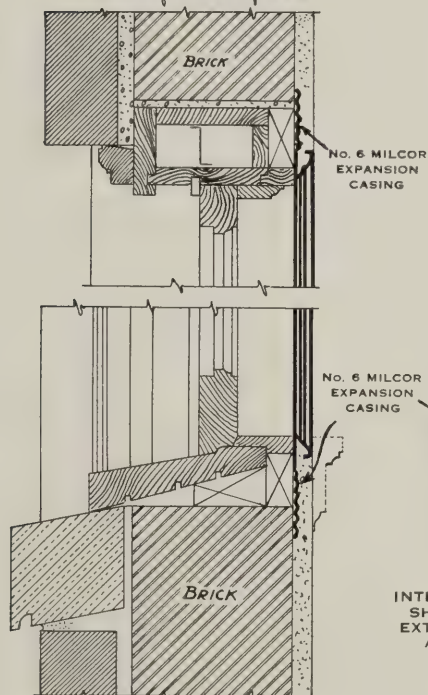
NOTE THE NETWORK OF EXPANDED METAL THROUGH WHICH THE PLASTER KEYS AND UNITES CASING WITH BASE SCREED AND METAL LATH.

Typical Details Using Patented Expansion Products

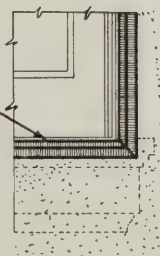


ELEVATION AND SECTION SHOWING
EXPANSION No. 3 FLUSH PLASTERING
SCREED BUTTING INTO No. 6 O. G.
EXPANSION CASING

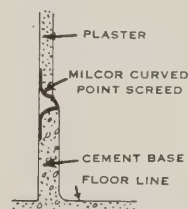
SECTION SHOWING No. 3
MILCOR SCREED SEPARATING
TILE WAINSCOT FROM PLASTER



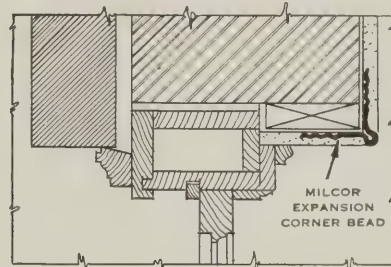
DETAIL OF
MILCOR METAL CASING
USED ON MASONRY WALLS



INTERIOR PART ELEVATION
SHOWING No. 6 MILCOR
EXTENSION CASING USED
AS SANITARY STOOL



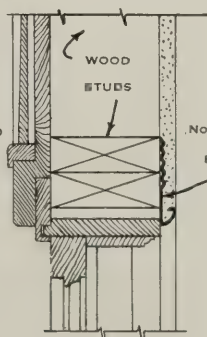
SECTION SHOWING MILCOR
CURVED POINT SCREED USED
WHERE FACE OF BASE PRO-
JECTS BEYOND FACE OF PLAS-
TER



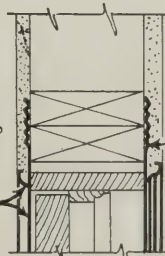
DETAIL OF JAMB SHOWING APPLICATION
OF MILCOR EXPANSION CORNER BEAD TO
PLASTER RETURN OF DOOR AND WINDOW



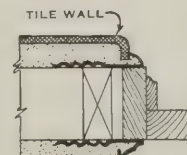
INTERIOR ELEVATION
OF WINDOW SHOWING
No. 4 MILCOR EXPANSION
CASING



DETAIL OF MILCOR
No. 4-1/4 ROUND
EXPANSION CASING
USED IN FRAME WALL



INTERIOR DOOR-HEAD
SHOWING APPLICATION
OF MILCOR METAL
CASINGS



SECTION THRU
JAMB SHOWING
MILCOR METAL
CASINGS



No. 7 Expansion Flashing, fabricated from Tight Coat Galvanized Open-Hearth Steel, or ARMCO Ingot Iron. Lengths of 7½ and 12 feet. Weight per 500 feet, 175 lbs., crated. Patented June 13, 1922.

MILCOR Expansion Flashing

THE combination of a *solid* metal wing with an *expanded* metal wing in the Milcor Expansion Flashing fulfills an ideal, the attainment of which has been heretofore impossible.

In this new expanded metal Flashing, Milcor Engineers have accomplished the means to eliminate the menace of water seepage and the attendant danger of cracking of the exterior stucco around doors, windows or other openings.

Water cannot leak in between casings and the stucco if Milcor Expansion Flashings have been used. The *solid metal wing* on one side prevents this, while on the other side the *expanded metal wing*, with web-like bond, unites the plaster or stucco permanently to the framework.

This modern Milcor Flashing provides

the desired rigidity of support so necessary to prevent the stucco from cracking or breaking.

There are four grades of Milcor No. 7 Expansion Flashings:

Cut from galvanized open-hearth steel.

Cut from galvanized ARMCO Ingot Iron.

Cut from No. 12 Pure Zinc.

Cut from 16-oz. Cold Rolled Copper.

Crated approximately 500 feet to crate.

Note: Copper and Zinc must not permanently touch each other or galvanized steel or other metal. Copper Flashing must therefore be applied with copper nails or staples and Zinc Flashing with galvanized nails or staples, to insure long life and satisfactory service.



No. 7 Expansion Flashing, fabricated from 16-oz. Pure Cold Rolled Copper. Lengths of 7½ and 12 feet. Weight per 500 feet, 175 lbs., crated. Patented June 13, 1922.



No. 3 Expansion Flush Base Plastering Screed, fabricated from Tight Coat Galvanized Open-Hearth Steel and ARMC0 Ingot Iron. Lengths of 10 and 12 feet. Crated 500 and 1,000 feet respectively. Weight per 1,000 feet, 230 lbs., crated. Patented June 13, 1922.

Patented *MILCOR* "Expansion" Flush Base Plastering Screed

MILCOR Expansion Flush Plastering Screed No. 3 is designed for use wherever Portland Cement and Lime or Gypsum Plasters are to be joined. Where cement base is wanted flush with plastered wall or where cement wainscoting is to be divided from plastered wall, it is ideal, because the expanded metal wings of this screed bind and reinforce both cement and plaster, tying them together firmly. This eliminates separation cracks heretofore unavoidable under such conditions.

Milcor Expansion Screed forms an ideal,

flush, precisely straight-line joint between plastered wall and cement based wainscot. Its expanded metal wings reinforce the covering materials and *eliminate* any possibility of cracks developing at their juncture.

Consult the group illustration on page 2, showing Expansion Base Screed in position in a wall, and also study the illustration in lower left corner of page 70.

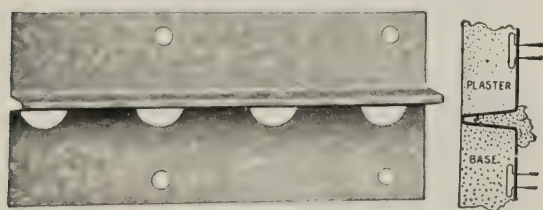
This Screed is perfectly adapted to use with Expansion Casings where Casing runs straight through to floor, and cement base is flush with plaster.

Other Milcor Base Screeds

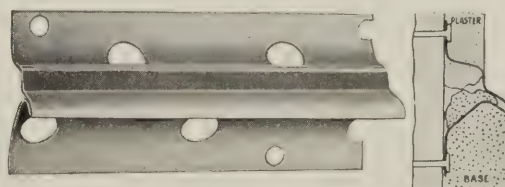
In the complete Milcor Line, other types of metal corner beads, without expanded wings, are also available. The designs in these Corner Beads, Screeds and

Molding, as developed by Milcor Engineers, are more practical than most solid metal winged products of this class.

Details on pages following.



Milcor Plain Base Screed, with sketch showing profile after plastering. Fabricated from Tight Coat Galvanized Open-Hearth Sheets. Lengths of 10 and 12 feet. Crated 1,000 and 1,008 feet respectively. Weight, 140 lbs., crated, per 1,000 feet.



Milcor Curved Point Base Screed, with sketch showing profile after plastering. Fabricated from Tight Coat Galvanized Open-Hearth Sheets. Lengths of 10 and 12 feet. Crated 1,000 and 1,008 feet respectively. Weight 195 lbs., crated, per 1,000 feet.

MILCOR Old-Style Metal Base Screed and Corner Beads

Milcor Curved Point Base Screed

THIS inconspicuous, indestructible, true-lined, Curved Point Milcor Base Screed forms a permanent grounds for plastering. It displaces the usual temporary wood grounds and forms a permanent cap for Portland Cement base.

With this Milcor Curved Point Base Screed it is possible to secure a sanitary base with precisely true lines — a result impossible to secure with Portland Cement alone because it will not cut smoothly under

a mold unless weakened with lime putty to an impractical state. This convenient Milcor Metal Base Screed helps eliminate any possibility of cracking between concrete base and plastered wall.

Made from tight-coat galvanized open-hearth steel; in 10-foot or 12-foot lengths, packed 1000 and 1008 feet, respectively, to the crate; weight approximately 195 lbs. per 1000 feet.

(See illustration on preceding page.)

Milcor Plain Base Screed

DESIGNED for use where a flush base is desired. Milcor Plain Base Screed is cut from tight-coat galvanized open-hearth steel; in 10-foot or 12-foot lengths,

packed 1000 and 1008 feet to the crate, respectively; weight approximately 140 lbs. per 1000 feet.

(See illustration on preceding page.)

Milcor "Bull Nose" Corner Bead No. 5

See also Expansion BULL NOSE Corner Bead No. 10 on Page 66.

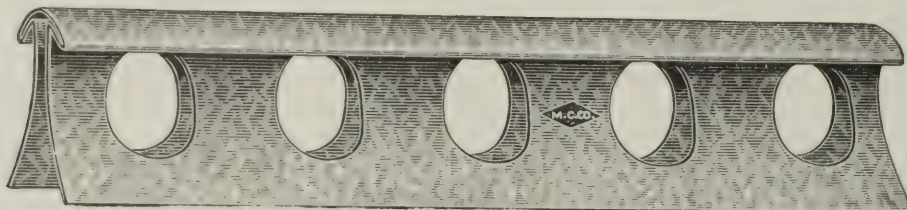
DESIGNED by Milcor Engineers for use in Hospitals and similar institutions, the broad, sturdy, rounded corner of Milcor "Bull Nose" has made this Corner Bead very popular.

The "Bull Nose" construction provides excellent protection for the corner and acts as a dependable buffer against moving trucks or other heavy objects which would be apt to damage any less substantial Bead.

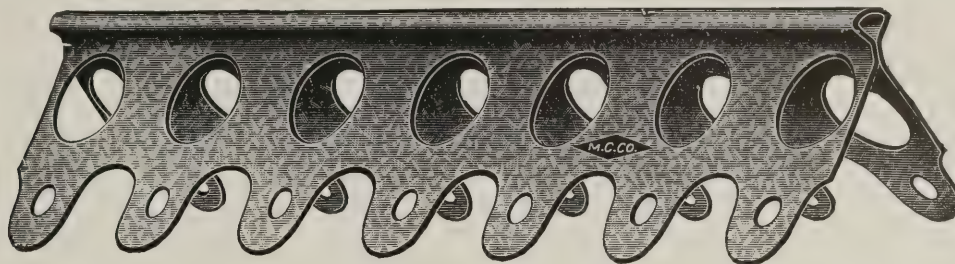
The Bull Nose harmonizes well with concave or rounded corners at floor and

ceiling lines and around windows in such buildings as Hospitals, where sharp angles are not as desirable, from a sanitary standpoint, as rounded angles.

Furnished in lengths of 5, 6, 7, 8, 9, 10 and 12 feet, cut from No. 26 Ga. and No. 28 Ga. Tight-Coat Galvanized Open-Hearth Steel. Approximate shipping weight No. 26 Ga., 290 lbs., No. 28 Ga. 245 lbs., per 1000 feet, crated; approximately 1000 feet to the crate.



Milcor Bull Nose Corner Bead, showing broad, curved nose.



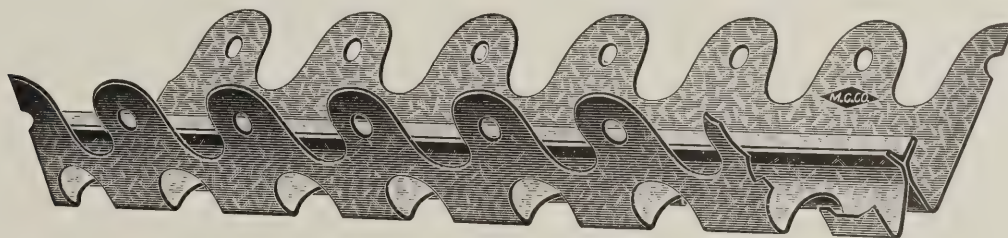
Superior Corner Bead, for Outer Corners Furnished in lengths of 6, 7, 8, 9, 10 and 12 feet; made from No. 26 Gauge Tight-Coat Galvanized Open-Hearth Steel. Packed ten pieces of uniform length to the bundle; crated approximately 500 and 1,000 feet. Shipping weight approximately 220 lbs. per 1,000 feet, crated.

Milcor "Superior" Corner Bead

MADE for outer or exposed corners the small rounded nose of Superior *Outside* Corner Bead makes an artistic, well-protected corner and furnishes a good grounds for the plasterer to work to. Its extra-wide flanges, or webs, provide an exceptional nailing surface. Its key holes

for mortar are staggered, thus gaining maximum strength at nose of bead.

Superior *Inside* Corner Bead forms a precise angle for the Plasterer to work to and accomplishes real protection against development of unsightly radial cracks at inner angles of plaster walls.

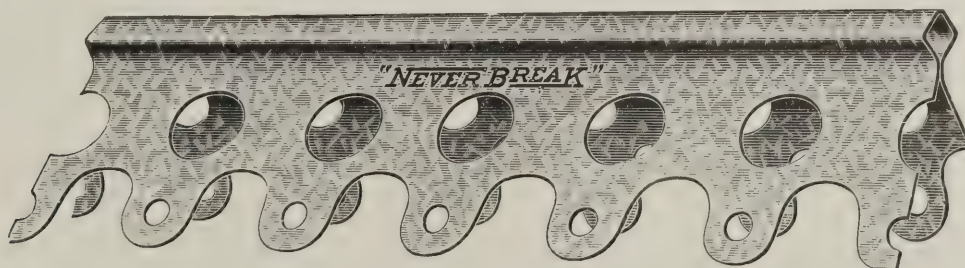


Superior Corner Bead for Inner Corners. Patented June 20, 1922.

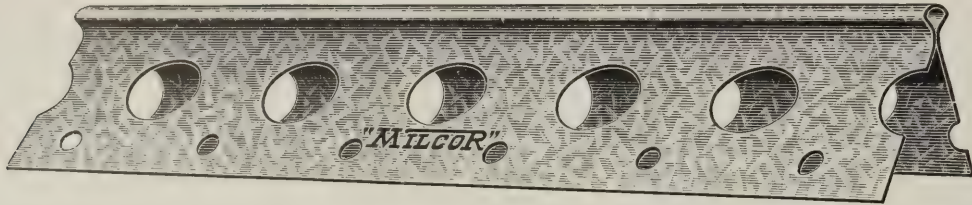
Milcor "Neverbreak" Corner Bead

THE "Neverbreak" Outer Corner Bead is similar in general design to the "Superior." But the *nose* is different. The "Neverbreak" has a pronounced diamond-shaped nose, forming a triangular corner,

instead of the oval corner of the "Superior." The "Neverbreak's" stiff and straight diamond-shaped nose is exposed for $\frac{1}{4}$ inch and affords good protection for the corner. It also has staggered key holes.



Neverbreak Corner Bead Furnished in lengths of 7, 8, 9, 10 and 12 feet, made of Tight-Coat Galvanized Open-Hearth Steel. Shipping weight approximately 185 lbs., per 1,000 feet, crated. Packed approximately 500 and 1,000 feet to a crate.



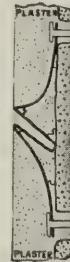
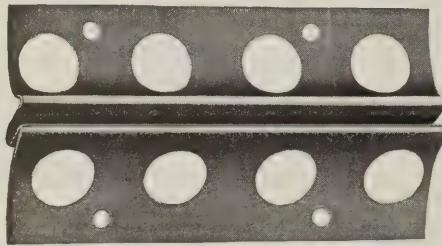
The Milcor Corner Bead. Furnished in lengths of 6, 7, 8, 9, 10 and 12 feet; made from Tight-Coat Galvanized Open-Hearth Steel. Weight approximately 200 lbs. per 1,000 feet, crated. Packed approximately 500 and 1,000 feet to a crate.

The "Milcor" Corner Bead (Wide Flange)

THE new and improved type "Milcor" Corner Bead, for outer or exposed corners, has same style oval-shaped nose as "Superior" Bead, but instead of scalloped wings of the "Superior," the "Milcor" Bead wings have straight edges. Key holes are staggered.

Milcor Concealed Picture Molding

Fabricated from Tight-Coat Galvanized Open-Hearth Steel. Furnished in lengths of 10 or 12 feet.



Packed 1,000 and 1,008 feet to the crate, respectively; weight approximately 220 lbs. per 1,000 feet, crated.

AN intangible something subtly impresses you when you enter a Milcor-trimmed room. Perhaps this impression reaches you through a sense of artistic propriety—perhaps it comes to you through a feeling that the room is exceptionally neat and well taken care of. But whatever channel it pursues, the impression is one of satisfaction — you *like* these rooms.

So inconspicuous! So neat! Milcor metallic construction imparts rare distinctiveness to the modern building or home. So much of a well-tailored appearance — just *naturally* such rooms are universally pleasing. Walls are unbroken by dusty, unsanitary, old-fashioned woodwork that makes rooms seem smaller than they really are.

Even in such details as Picture Molding, the Milcor touch means much to architects in developing a thoroughly pleased client-

tele. It is scarcely necessary to make an actual comparison to recognize the inferiority of old-fashioned wooden molding and to appreciate the supreme value of Milcor Metallic Picture Molding—the concealed, invisible kind!

Wooden Molding is an eyesore and a dust and vermin-collecting menace to sanitation.

Milcor Concealed Picture Molding — permanent, sturdy and sanitary — inconspicuously floats the pictures and decorations and anchors them without marring or breaking the beautiful expanse of wall. Milcor Concealed Picture Molding is built in — imbedded in the base of the plastered wall. It forms a rigid, dependable support for even the heaviest decorations. It can never warp or sag or show ill-matched ends, as old fashioned molding generally does.

The "Milcor" Universal Corner Bead Clip

THE Milcor Universal Clip is adapted to use with all Milcor Old Style Corner Beads wherever Clips are necessary. This Clip is very simple and is easily ad-

justed. It holds the Bead rigidly.

Stamped from Tight-Coat Galvanized Open-Hearth Steel; packed in cartons of 2000; weight per thousand, 25 pounds.

Milcor Galvanized Brick Bond or Wall Tie

THE corrugations on Milcor Brick Bonds or Wall Ties add strength and increase the grip-hold of mortar. A secure tie-up is assured.

These Brick Bonds are suitable for solid brick walls or for brick-veneered work.

The Bonds are furnished with two nail holes punched at each end.

Size: $\frac{7}{8}$ inch x $6\frac{3}{4}$ inches, corrugated the short way; stamped from Tight-Coat Galvanized Open-Hearth Steel; packed 1000 in a carton, weight per carton 35 pounds.

Milcor Crimped Metal Furring

WHERE Metal Furring is required, this simple Milcor Crimped Metal Furring is nicely adapted to any form of construction.

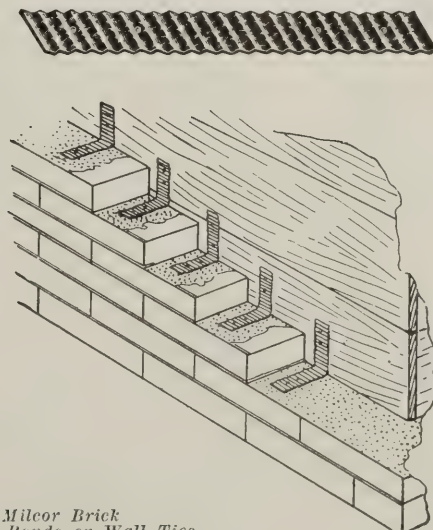
It is made from No. 22 Band Iron and

is furnished in these practical sizes:

$\frac{1}{2}$ inch — approximately 20 lineal feet to the pound; $\frac{3}{4}$ inch — approximately 15 lineal feet to the pound; 1 inch — approximately 10 lineal feet to the pound. Furnished in rolls.



*Milcor
"Universal"
Corner Bead Clip,
Fits All Types of
Milcor Old Style
Beads.*



*Milcor Brick
Bonds or Wall Ties
They Assure a Secure
Tieup Between Wall and Siding.*



*Milcor Crimped
Metal Furring.*

FAMOUS BUILDINGS In Which MILCOR PRODUCTS WERE USED



SCHROEDER HOTEL, Milwaukee, Wis.

HOLABIRD & ROCHE ARCHITECTS



"333 MICHIGAN AVE.," Chicago.

HOLABIRD & ROCHE, ARCHITECTS



REPUBLIC BUILDING, Denver, Colo.

DUTTON & KENDALL CO BUILDERS DENVER COLO



THE COLUMBIA - PRESBYTERIAN
MEDICAL CENTER, New York, N.Y.

JAMES GAMBLE ROGERS, ARCHITECT



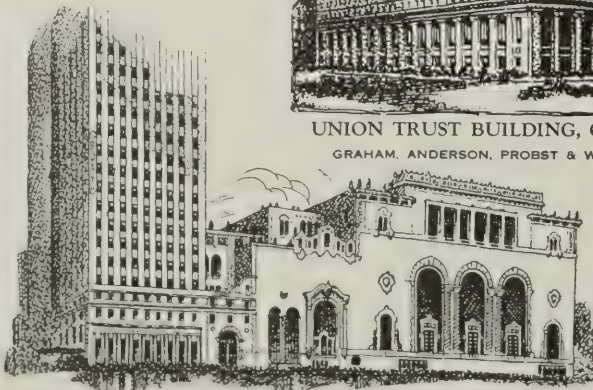
ST. VINCENT'S HOSPITAL
Jacksonville, Florida

G. A. BARRY, JACKSONVILLE, FLA



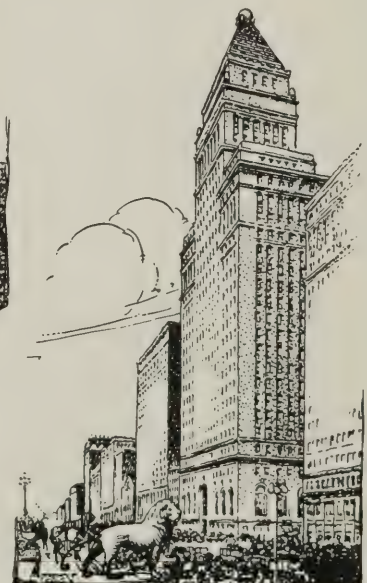
UNION TRUST BUILDING, Cleveland, Ohio.

GRAHAM, ANDERSON, PROBST & WHITE, CHICAGO



ROXY THEATRE, New York, N.Y.

W. W. AHSCHLAGER, INC., CHICAGO



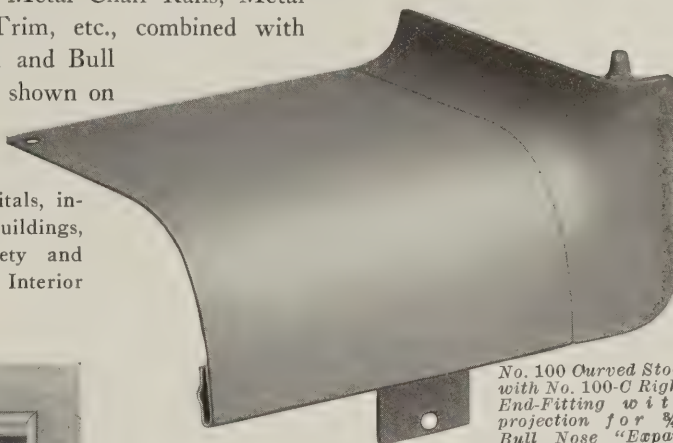
STRAUS BUILDING, Chicago, Ill.

GRAHAM, ANDERSON, PROBST & WHITE, CHICAGO

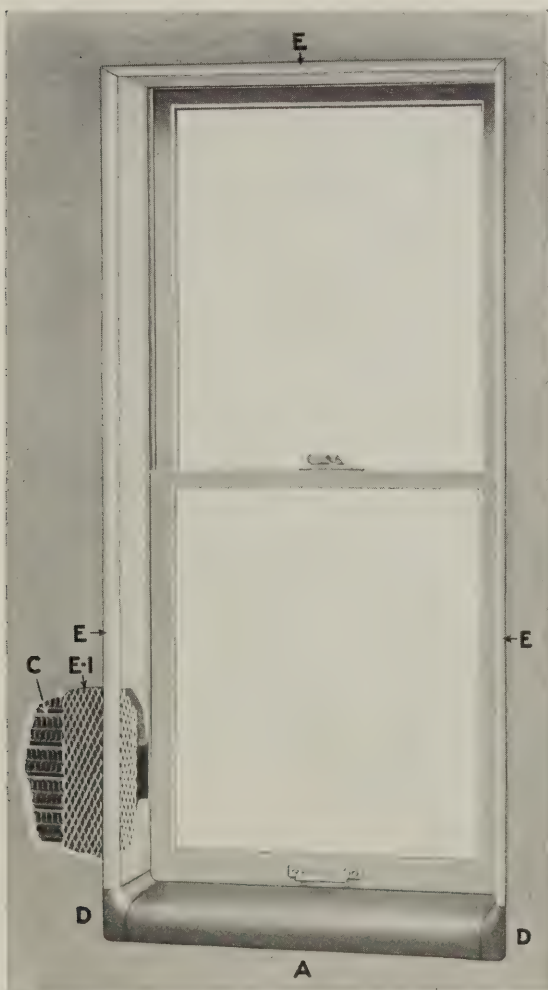
Curved Metal Window Stool No. 100

MILCOR Metal Trim for interiors . . . including Metal Window Stools, Metal Bases, Metal Chair Rails, Metal Chalk Trough, Blackboard Trim, etc., combined with Milcor "Expansion" Corner Bead No. 1 and Bull Nose "Expansion" Corner Bead No. 10, shown on Pages 79 to 86, commends itself for all types of buildings.

For modern public buildings, schools, hospitals, institutions, hotels, office buildings, industrial buildings, etc., where sanitation, permanence, firesafety and beauty are important considerations, Milcor Interior Metal Trim is ideal.



No. 100 Curved Stool with No. 100-C Right End-Fitting with projection for $\frac{3}{4}$ " Bull Nose "Expansion" Corner Bead No. 10.



"A"—No. 100 Curved Stool; "D"—Nos. 100-C and 100-D, Right and Left End Fittings, respectively; "E"— $\frac{3}{4}$ in. Nose of Bull Nose Expansion Corner Bead No. 10; "E-1"—Expanded Metal Wings of Bead; "C"—Stay-Rib Metal Lath No. 1 in wall.

Specifications—All Units in No. 100 Series

No. 100 Curved Metal Window Stool: Made of No. 18 or No. 20 Ga. Special Tight-Coat Galvanized Sheet Steel. All exposed surfaces primed with special gray primer. Standard lengths from one to ten feet in multiples of one foot. Standard reveal $3\frac{3}{8}$ inches. Special reveals from 1 inch up.

No. 100-A—Corner Fitting—for continuing Stool around window. Four required for each window.

No. 100-C—Right End Fitting—for connecting No. 100 Stool with $\frac{3}{4}$ -inch radius Bull Nose Expansion Corner Bead No. 10 for window trim.

No. 100-D—Left End Fitting—used at left end of No. 100 Stool, just as No. 100-C is used at right end.

No. 100-H—Right End Stop—for terminating No. 100 Stool when using $1\frac{1}{2}$ " radius curved plaster jambs.

No. 100-J—Left End Stop—for terminating left end, just as No. 100-H is used at right end.

How to Install

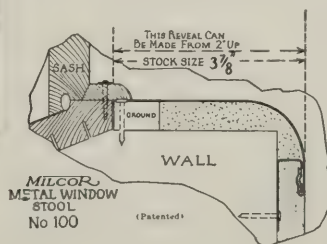
Adjustable brackets 9 inches apart which slide in groove, permit fastening to wall base as desired. Drawing below ($\frac{1}{4}$ actual size) shows details of installation. Fill back of Stool with cement mortar when installing. The design of the brackets permits filling in mortar after Stool is installed, if more convenient.

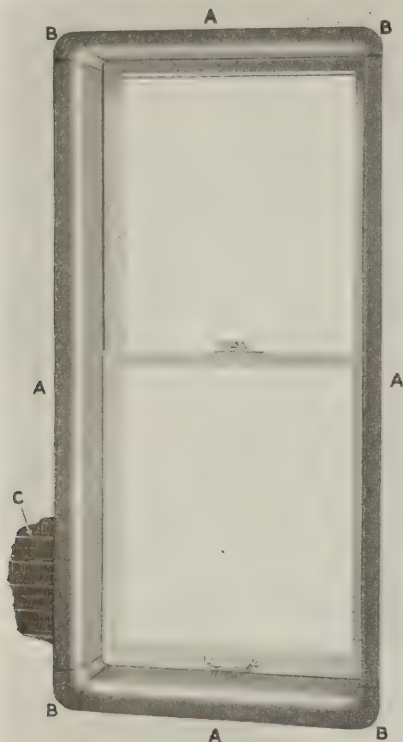
Weights: No. 100 Curved Stool

No. 18 Gauge: $3\frac{3}{8}$ inch reveal, approximately 1153 lbs. per 1000 feet, crated. Add 180 lbs. per 1000 feet for each additional inch of reveal.

No. 20 Gauge: $3\frac{3}{8}$ inch reveal, approximately 903 lbs. per 1000 feet, crated. Add 138 lbs. per 1000 feet for each additional inch of reveal.

Note: Loop anchors attached to under side of Stool for use in cement grout where complete fireproof construction is demanded.





"A"—No. 100 Curved Stool, used as Window Stool and Complete Trim; "B"—No. 100-A Corner Fittings; "C"—Milcor Stay-Rib Metal Lath No. 1, the "backbone" of Better Plastering.

At Left: No. 100 Curved Metal Window Stool, with four No. 100-A End Fittings and Stool continued around entire window as complete trim. This construction may be used as an alternate to the method shown on Page 79, where Bull Nose "Expansion" Corner Bead No. 10 is used for the window Trim with No. 100 Stool.

At Right: No. 101 Splay Metal Window Stool with "Expansion" Corner Bead No. 1 used as Trim. Frequently the splay effect is desired around the entire window, thus helping to increase the flow of light into the room. The expanded metal wings of "Expansion" Corner Bead can be bent to any angle, easily, to attain whatever splay angle may be desired. It is recommended that plastered splay corners always be protected by Milcor "Expansion" Corner Bead No. 1 to prevent checking and cracking. This bead with its expanded metal wings absorbs shocks and strains which ordinarily would damage the plaster.



"G"—No. 101 Splay Stool; "F"—Nose of Expansion Corner Bead No. 1 in plaster-reveal; "F-I"—Expanded metal wings of Expansion Corner Bead; "C"—Milcor Stay-Rib Metal Lath No. 1.

Splay Metal Window Stool No. 101

WHERE flat or curved window stools are not desired, or where walls are thick and maximum light is desired, this substantial Milcor No. 101 Splay Metal Stool answers all requirements admirably.

This Stool is also equipped with sliding adjustable brackets 9 inches apart, permitting fastening to wall base wherever desired.

See illustration above, at right.

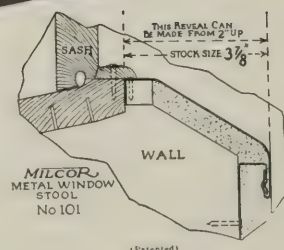
Specifications:

Made of No. 18 or No. 20 Gauge Special Tight-Coat Galvanized Sheet Steel. All exposed surfaces primed with special gray primer. Standard lengths from one foot to ten feet, in multiples of one foot. Standard reveal $3\frac{3}{8}$ ". Special reveals from 2" up. Slope can be furnished at any angle.

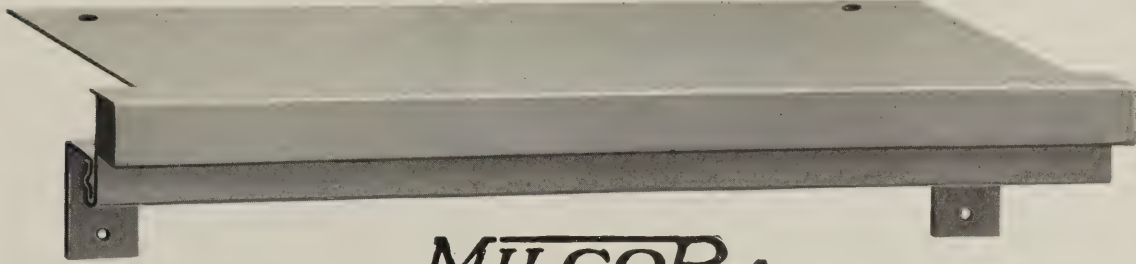
Weights: No. 18 Ga., $3\frac{3}{8}$ " reveal, approximately 1535 lbs. per 1000 feet, crated. Add 230 lbs. per 1000 feet for each additional inch of reveal.

No. 20 Ga., $3\frac{3}{8}$ " reveal, approximately 1150 lbs. per 1000 feet, crated. Add 175 lbs. per 1000 feet for each additional inch of reveal.

Special Feature: Sliding, adjustable brackets, spaced about 9 in. on centers, simplify installation.



Detail of installation ($\frac{1}{4}$ size), showing how No. 101 Splay Stool should be erected. Splay angle can be made to meet requirements. Send us your specifications.

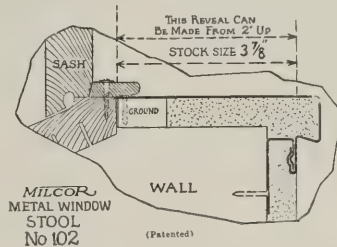


MILCOR Flat Metal Window Stool No. 102

THIS substantial flat window Stool is made for $\frac{1}{2}$ -inch, $\frac{5}{8}$ -inch, or $\frac{3}{4}$ -inch grounds, as specified. It is equipped with adjustable sliding brackets for fastening at any points desired. Closures for the ends, as shown above, are furnished without extra charge.

The Stool should be filled at time of setting with cement mortar. The detail drawing shown here ($\frac{1}{4}$ size) indicates method of installation. The design of the

brackets permits filling in mortar after Stool is installed, if preferred.



No special fittings are required to connect the jambs with this Stool, as the jambs rest on the flat surface of the Stool. Milcor Bull Nose "Expansion" Corner Bead No. 10, simply mitred to fit the bead, makes the most desirable jamb, as shown below. No. 100 Curved Stool may also be used for jambs and head as shown below.

SPECIFICATIONS No. 102 Flat Metal Window Stool:

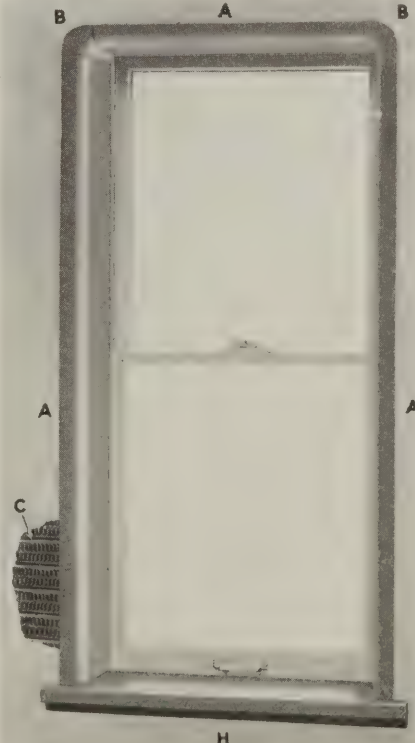
Made of No. 18 or No. 20 Gauge, special tight-coat galvanized steel; all exposed surfaces painted with special gray primer; standard reveal $3\frac{7}{8}$ in., but can be furnished in special sizes from 2 in. up; lengths 1 ft. to 10 ft. in multiples of one foot; weight, 20 Ga., $3\frac{7}{8}$ in. reveal, approximately 1040 lbs. per 1000 ft. crated; add 138 lbs. per 1000 ft. for each additional inch of reveal. Weight, 18 Ga., $3\frac{7}{8}$ in. reveal, approximately 1332 lbs. per 1000 ft., crated; add 180 lbs. per 1000 ft. for each additional inch of reveal.

Furnished with loop anchors attached to under side of Stool for use in cement grout, when specified, for fireproof construction.

At left and right: "H"—No. 102 Flat Stool; "E"—Nose of Bull Nose "Expansion" Corner Bead No. 10; "E-1"—Wings of Corner Bead; "C"—Stay-Rib Metal Lath No. 1; "A"—No. 100 Curved Stool astrim; "B"—No. 100-A Corner Fittings.



No. 102 Flat Metal Window Stool, with plastered jambs and head formed with Milcor Bull Nose "Expansion" Corner Bead No. 10 (Pat'd.).



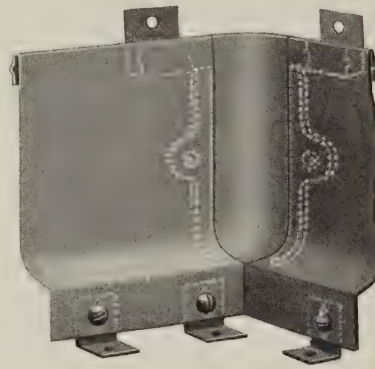
No. 102 Flat Metal Window Stool, with metal jambs and head formed by No. 100 Curved Stool with No. 100-A End Fittings at either corner of head.

MILCOR

Flush Metal Cove Base No. 110



This illustrates No. 110 Flush Metal Cove Base extending on either side of No. 110-F Outside Round Corner, 1 1/2 in. radius. No. 110-E Outside Round Corner has 3/4 in. radius. Square outside corners also available.



This shows No. 110 Flush Metal Cove Base extending on either side of No. 110-D Inside Round Corner, 1 1/4 in. radius. No. 110-C Outside Round Corner has 3/4 in. radius. Square inside corners also available.

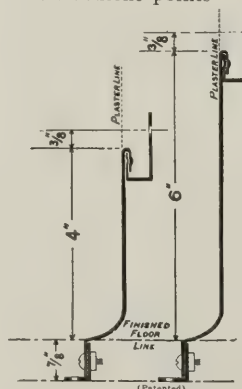
THIS Flush Metal Cove Base No. 110 has desirable sanitary features because it presents no ledge or projection on which dust might collect after the plastered wall is run flush to its top edge.

The top sliding bracket attachments offer convenient means of attaching to wall base at convenient points on about 9-inch centers. These brackets leave ample openings for easy and thorough grouting after erection. The bottom brackets for fastening to the rough floor are slotted to allow vertical freedom of motion to compensate for irregularities of floors or for settling, thereby avoiding possibility of cracks developing at juncture of top of base with plastered wall.

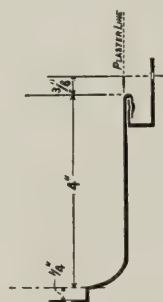
No. 110 Base can be used with cement, composition, or wood floors. Detailed instructions for proper installation are furnished to the contractor. Necessary tools for erection may be rented at very nominal charge. All Fittings that go with this

Base, are simple to attach with the machine-screws which are furnished without extra cost.

SPECIFICATIONS: No. 110 Flush Metal Cove Base: Made of No. 18 or No. 20 Gauge special tight-coat galvanized steel; all exposed surfaces primed with special gray primer; heights, 4" or 6", as specified; standard length, 10'; splice plates furnished to extent of one per ten feet of base, at no extra charge.



Sectional view of No. 110—4 in. Base and No. 110—6 in. Base, one-fourth actual size. True size and proper location of nailing grounds may be determined from this.



Also furnished with bottom flange of 1/4 in. for linoleum or other flat flooring.

Weights: (Approximate)

No. 110 4" 20 Ga..... 850 lbs. per 1000 ft., crated.

No. 110 4" 18 Ga.....1055 lbs. per 1000 ft., crated.

No. 110 6" 20 Ga.....1135 lbs. per 1000 ft., crated.

No. 110 6" 18 Ga.....1397 lbs. per 1000 ft., crated.

4" Corner Fittings, Plinths and End Stops.....500 lbs. per 1000 pieces

6" Corner Fittings, Plinths and End Stops.....750 lbs. per 1000 pieces

Standard Fittings for Milcor No. 110 Cove Base

	4 in. High	6 in. High
	No.	No.
Inside square corner.....	110A	110A6
Outside square corner.....	110B	110B6
Inside round corner, 3/4" radius.....	110C	110C6
Inside round corner, 1 1/2" radius.....	110D	110D6
Outside round corner, 3/4" radius.....	110E	110E6
Outside round corner, 1 1/2" radius.....	110F	110F6
Right end stop.....	110H	110H6
Left end stop.....	110J	110J6
Right plinth for No. 4, 1/4" round Expansion casing	110K	110K6

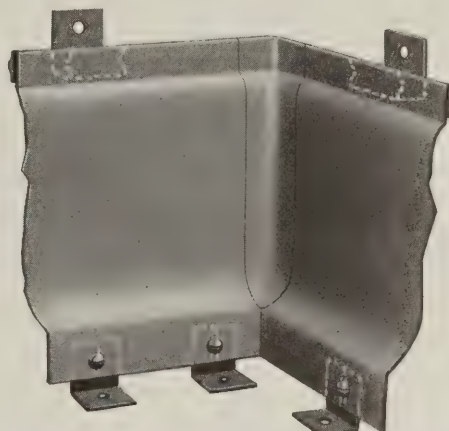
	4 in. High	6 in. High
	No.	No.
Left plinth for No. 4, 1/4" round expansion casing.....	110L	110L6
Right plinth for No. 6 O. G. expansion casing.....	110M	110M6
Left plinth for No. 6 O. G. expansion casing.....	110N	110N6
Right plinth No. 8 O.G. No. 24 Ga. expansion casing.....	110P	110P6
Left plinth No. 8 O. G. No. 24G expansion casing.....	110R	110R6
Right plinth block 4 1/2" wide.....	110S	110S6
Left plinth block 4 1/2" wide.....	110T	110T6
Right plinth block 5 1/2" wide.....	110U	110U6
Left plinth block 5 1/2" wide.....	110V	110V6

MILCOR

Projecting Metal Cove Base No. 112



This illustrates No. 112 Projecting Metal Cove Base extending on either side of No. 112-B Outside Square Corner. Outside Round Corners with $\frac{3}{4}$ in. radius (No. 112-E) or $1\frac{1}{2}$ in. radius (No. 112-F) are also available.

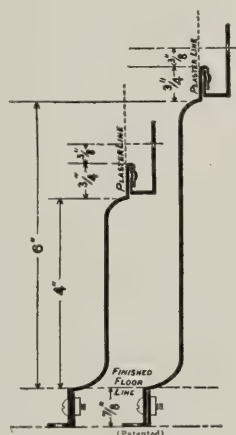


This shows No. 112 Projecting Metal Cove Base extending on either side of No. 112-A Inside Square Corner. Inside Square Corners with $\frac{3}{4}$ in. radius (No. 112-C) or $1\frac{1}{2}$ in. radius (No. 112-D) are also available.

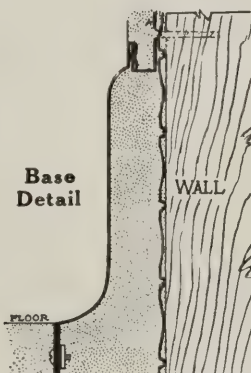
THE artistic lines of this Projecting Metal Cove Base No. 112 commend it for rooms where this added touch for appearance is desired. This makes a pleasing, sanitary, crackfree metal base.

The top sliding bracket attachments offer convenient means of attaching to wall base at convenient points on about 9-inch centers. These brackets leave ample opening for easy and thorough grouting after erection. The bottom brackets for fastening to the rough floor are slotted to allow vertical freedom of motion to compensate for irregularities of floors or settling, thereby avoiding possibility of cracks developing at juncture of top of base with plastered wall.

No. 112 Base can be used with cement, composition, or wood floors. Detailed instructions for proper installation are furnished to contractor. Necessary tools for erection may



Sectional view of No. 112—4 in. Base and No. 112—6 in. Base, one-fourth actual size. True size and proper location of nailing grounds may be determined from this.



View of No. 112 Base applied with wood stud construction with plastering on Stay-Rib Metal Lath, plaster grouted in behind base (note cross-section of Stay-Rib Metal Lath).

be rented at very nominal charge. All Fittings that go with this Base are simple to attach with the machine-screws which are furnished without extra cost.

SPECIFICATIONS: No. 112 Flush Metal Cove Base:

Made of No. 18 or No. 20 gauge special tight-coat galvanized steel; all exposed surfaces primed with special gray primer; heights, 4" or 6", as specified; standard length, 10'; splice plates furnished to extent of one per ten feet of base, at no extra charge.

Weights: (Approximate)

No. 112 4" 20 Ga..... 990 lbs. per 1000 ft., crated
No. 112 4" 18 Ga.....1275 lbs. per 1000 ft., crated
No. 112 6" 20 Ga.....1350 lbs. per 1000 ft., crated
No. 112 6" 18 Ga.....1585 lbs. per 1000 ft., crated
4" Corner Fittings, Plinths and End Stops....500 lbs. per 1000 ft.
6" Corner Fittings, Plinths and End Stops....750 lbs. per 1000 ft.

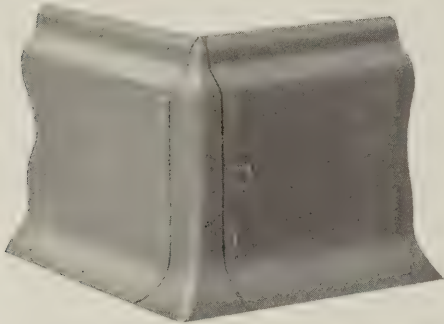
Standard Fittings for Milcor No. 112 Cove Base

	4" High No.	6" High No.
Inside square corner.....	112A	112A6
Outside square corner.....	112B	112B6
Inside round corner $\frac{3}{4}$ " radius.....	112C	112C6
Inside round corner $1\frac{1}{2}$ " radius.....	112D	112D6
Outside round corner $\frac{3}{4}$ " radius.....	112E	112E6
Outside round corner $1\frac{1}{2}$ " radius.....	112F	112F6
Right end stop.....	112H	112H6

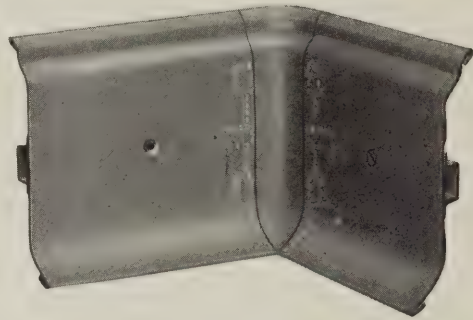
	4" High No.	6" High No.
Left end stop.....	112J	112J6
Right plinth for No. 4, $\frac{1}{4}$ " round expansion casing.....	112K	112K6
Left plinth for No. 4, $\frac{1}{4}$ " round expansion casing.....	112L	112L6
Right plinth for No. 6 O. G. expansion casing.....	112M	112M6
Left plinth for No. 6 O. G. expansion casing.....	112N	112N6
Right plinth No. 8 O. G. No. 24 ga. expansion casing.....	112P	112P6
Left plinth No. 8 O. G. No. 24 ga. expansion casing.....	112R	112R6

MILCOR

Removable Metal Base No. 116



This illustrates No. 116 Removable Metal Base extending on either side of No. 116-B Square Corner. Outside Round Corners with $\frac{3}{4}$ in. radius (No. 116-E) or $1\frac{1}{2}$ in. radius (No. 116-F) are also available.

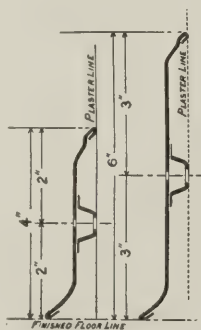


This shows No. 116 Removable Metal Base extending on either side of No. 116-A Square Corner. Inside Round Corners with $\frac{3}{4}$ in. radius (No. 116-C) or $1\frac{1}{2}$ in. radius (No. 116-D) are also available.

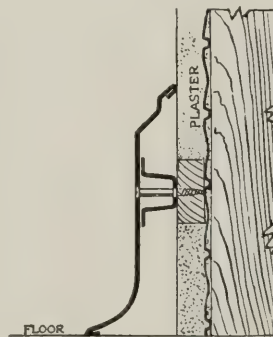
THIS type of metal base is economically installed because it may be applied after the plastered wall and the flooring have been completed and this base is easily removable. A wooden plaster-ground in the wall, half way between floor line and top of base is required for attaching. The same wooden ground may be used for either the 4-inch or 6-inch base. A continuous metal backing-strip gives it even and firm support along line of attachment.

The lines of the No. 116 Base are very pleasing and it makes a neat, crackfree, permanent base.

No brackets are required for installing the No. 116 Removable Metal Base. Flat-



Sectional drawing, $\frac{1}{4}$ size, showing exact proportions of 4 in. and 6 in. bases and the position of nailing grounds.



Sectional drawing showing construction of wall, with plastering on a base of Milcor Metal Lath.

headed machine screws are furnished and the screw-holes are die-cut through both the base and the metal backing-strip. The slots in the heads of the screws can be puttied flat or filled with solder after installing, to conceal them.

The top and bottom edges are seamed back, thus providing ample rigidity to this base, without the necessity of any grouting back of it. The design is such that a snug fit is assured, free from cleavage cracks.

Detailed instructions for proper installation are furnished to the contractor. Necessary tools for erection may be rented at very nominal charge. All Fittings that go with the base are simple to attach with the machine screws which are furnished without extra cost.

SPECIFICATIONS: No. 112 Removable Metal Base

Made of No. 18, No. 20 or No. 24 Gauge special tight-coat galvanized steel; all exposed surfaces primed with special gray primer; heights 4 in. or 6 in. as specified; standard length, 10 ft.; splice plates furnished to extent of one per ten feet of base, at no extra charge.

No. 116-4 in.-24 Ga.	735 lbs. per 1000 ft., crated
No. 116-4 in.-20 Ga.	905 lbs. per 1000 ft., crated
No. 116-4 in.-18 Ga.	975 lbs. per 1000 ft., crated
No. 116-6 in.-24 Ga.	910 lbs. per 1000 ft., crated
No. 116-6 in.-20 Ga.	1135 lbs. per 1000 ft., crated
No. 116-6 in.-18 Ga.	1300 lbs. per 1000 ft., crated

Weights: (approximate)

4 in. Corner Fittings, Plinths and End Stops,	500 lbs. per 1000 pieces.
6 in. Corner Fittings, Plinths and End Stops,	750 lbs. per 1000 pieces.

Standard Fittings for Milcor No. 116 Removable Base

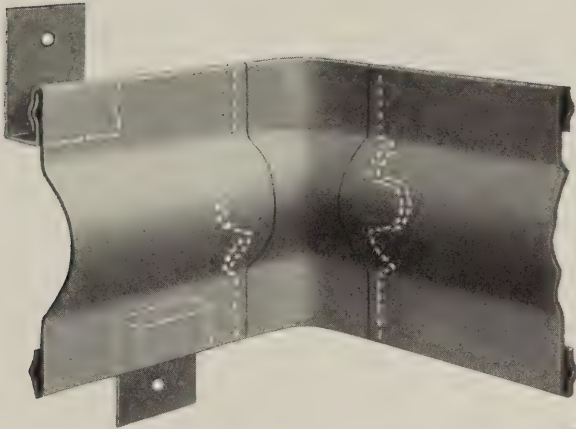
	4" High No.	6" High No.
Inside square corner.....	116A	116A6
Outside square corner.....	116B	116B6
Inside round corner $\frac{3}{4}$ " radius.....	116C	116C6
Inside round corner $1\frac{1}{2}$ " radius.....	116D	116D6
Outside round corner $\frac{3}{4}$ " radius.....	116E	116E6
Outside round corner $1\frac{1}{2}$ " radius.....	116F	116F6
Right end stop.....	116H	116H6
Left end stop.....	116I	116I6
Right plinth for No. 4, $\frac{1}{4}$ round expansion casing.....	116K	116K6
Left plinth for No. 4, $\frac{1}{4}$ round expansion casing.....	116L	116L6
Right plinth for No. 6, O. G. expansion casing.....	116M	116M6
Left plinth for No. 6, O. G. expansion casing.....	116N	116N6
Right plinth No. 8, O. G. 24 Ga. expansion casing.....	116P	116P6
Left plinth for No. 8, O. G. 24 Ga. expansion casing.....	116R	116R6

MILCOR

BETTER PLASTERING
ON METAL LATH

PRODUCTS

MILCOR Metal Chair Rail No. 130



At Left: Showing No. 130 Metal Chair Rail extending on either side of $\frac{3}{4}$ in. radius Inside Round Corner No. 130-C.

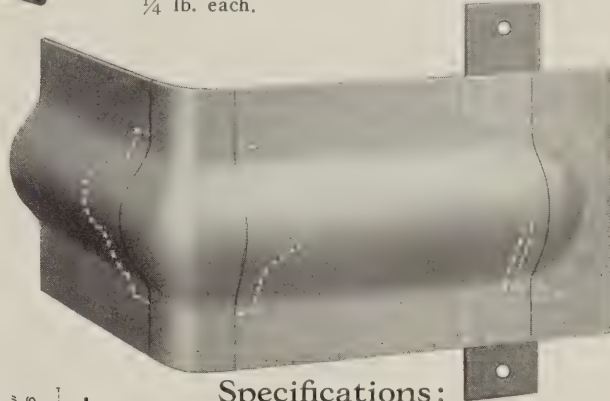
Below: Showing No. 130 Metal Chair Rail extending on either side of $\frac{3}{4}$ in. radius Outside Corner No. 130-E, with Right End Stop No. 130-H in place.

Complete Fittings available are:

- No. 130-A Inside Square Corner
- No. 130-B Outside Square Corner
- No. 130-C Inside $\frac{3}{4}$ " Radius Corner
- No. 130-D Inside $1\frac{1}{2}$ " Radius Corner
- No. 130-E Outside $\frac{3}{4}$ " Radius Corner
- No. 130-F Outside $1\frac{1}{2}$ " Radius Corner
- No. 130-H Right End Stop
- No. 130-J Left End Stop

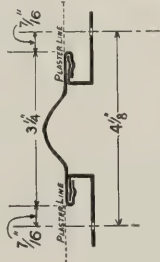
Shipping weight of Fittings, approximately $\frac{1}{2}$ lb. each.

Shipping weight of End Stops, approximately $\frac{1}{4}$ lb. each.



HERE is a Metal Chair Rail or Wainscot Cap that is designed not only for unusual utility but also for satisfactory appearance. In no way does it interfere with the artistic general design or treatment of the room. For schools, hospitals, public buildings, auditoriums, office buildings, industrial buildings, etc., this Chair Rail is particularly desirable.

It is erected before the plastering is done. Its edges, top and bottom, form a screed to which the plasterer can work. The adjustable sliding brackets permit rigid fastening and allow plenty of room for grouting the plaster in behind the rail. The Corner Fittings and End Stops follow the smooth contour of the rail itself in a most pleasing manner.



Specifications:

Made of No. 20 Gauge special tight-coat galvanized steel. All exposed surfaces primed with our special gray primer. Standard length, 10'; exposed face $3\frac{3}{4}$ " high; sliding brackets for attaching make it possible to fasten at convenient points on about 9" centers. Shipping weight approximately 790 lbs. per 1000 feet, crated.

Sectional drawing at left is $\frac{1}{4}$ actual size. The true size and proper location of nailing grounds may be determined from this.

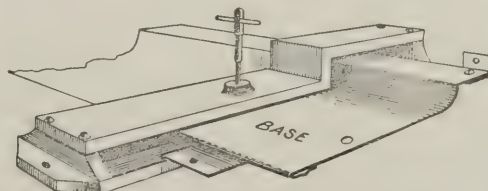
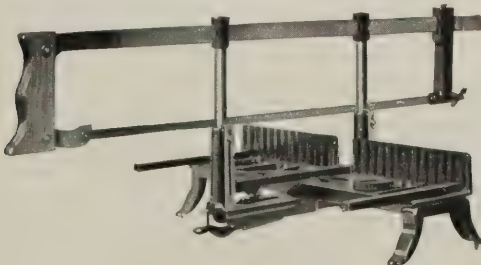
Simple to Install

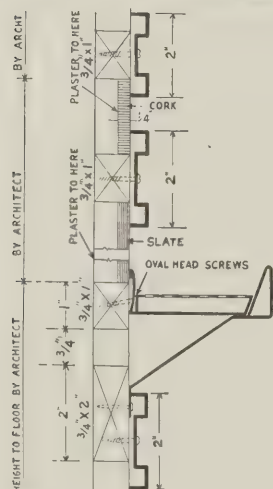
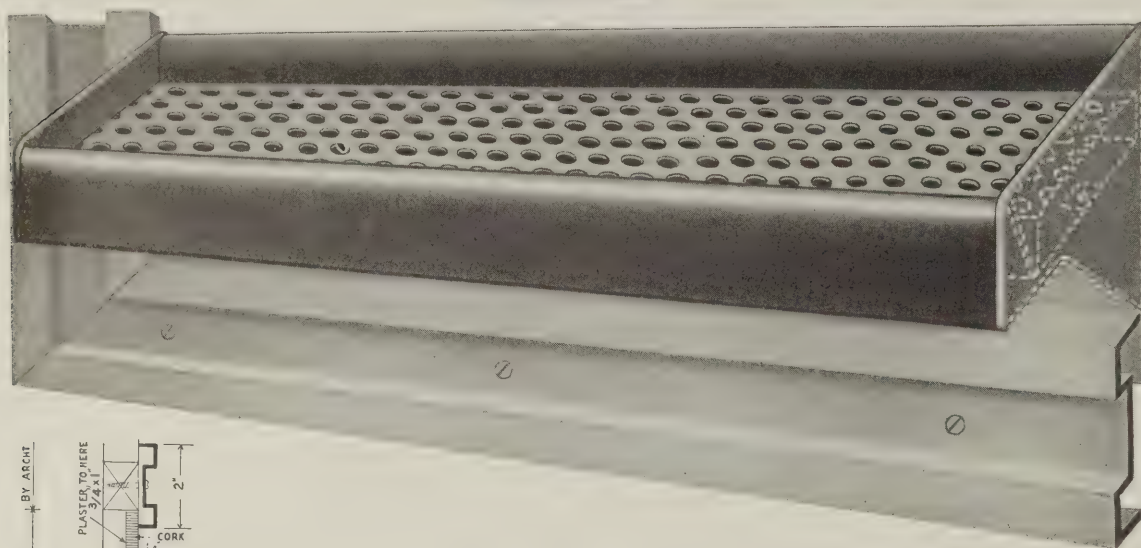
THE only tools necessary for installing our product that are not included in the regular equipment of every mechanic are a mitre box saw and punching tool as shown below.

This mitre box saw, although designed especially for use in connection with our base and casing, can

be conveniently used for a great many operations in connection with building.

The punching tool is used in connection with the base. It makes a very simple and easy method for punching the necessary holes to attach fittings.





Sectional View (1/4 size) showing No. 125 Metal Chalk Trough and No. 121 Metal Trim, indicating their relative positions with reference to the blackboard and the corkboard panel. The proper location of the grounds is plainly shown. The effect is very pleasing wherever No. 121 Trim is used in this manner.

MILCOR

Chalk Trough No. 125 and No. 121 Blackboard Trim

THIS modern metal chalk trough has all the advantages of pleasing design, exceptional sanitary features, moderate cost, simplicity and strength. The trough is broad and deep enough to hold erasers and chalk securely. The perforated tray keeps the chalk and erasers out of the chalk dust as it accumulates, because it permits chalk dust to sift downward into the compartment below, where it lies undisturbed until the perforated tray is removed and the chalk dust is taken out. To facilitate cleaning, the End Stops may be removed.

Milcor Chalk Trough No. 125 is adaptable to any blackboard installation. It is fireproof and practically indestructible.

The use of Milcor No. 121 Metal Trim as a molding completely around the chalk trough and blackboard installation is recommended. The combination is shown above.

SPECIFICATIONS: No. 125 Chalk Trough:

Made of No. 24 Gauge special tight-coat galvanized sheet steel. All exposed surfaces primed with our special gray primer. Standard length, 10'; special lengths made to order; splices furnished on request, to the extent of one per ten feet of trough, at no extra charge. Proper screws for attaching are furnished with the other material. Shipping weight, complete, approximately 400 lbs. per 1000 feet, crated.

Chalk Trough End Stops:

No. 125-H Right End Stop and No. 125-J Left End

Stops are required for the ends of each run of No. 125 Chalk Trough. These End Stops are easily attached with the machine screws which we furnish, and are readily removable for cleaning. Shipping weight approximately 1/4 lb. each.

SPECIFICATIONS: No. 121 Metal Trim:

Made of No. 20 gauge special tight-coat galvanized sheet steel. All exposed surfaces primed with our special gray primer. Proper screws furnished for attaching. Shipping weight approximately 400 lbs. per 1000 feet.

*A few buildings of
the Marquette University,
Milwaukee,
Wisconsin.*



*All the new modern
Marquette University
buildings embody
Milcor Products.*

Approved Architects' Specifications for Milcor Metal Lath Construction

IF the following Specifications are carefully observed safe and permanent construction will be insured at economical cost. The following terms for Milcor Metal Lath Construction have been established:

STAY-RIB LATH No. 1: A Milcor Metal Lath in which the rib has a total depth of $\frac{1}{8}$ inch. (See Pages 28 and 29.)

$\frac{3}{8}$ STAY-RIB LATH No. 2: A combination of expanded metal lath and ribs where the rib has a total depth of $\frac{3}{8}$ inch. (See Page 30.)

$\frac{3}{4}$ " STAY-RIB LATH No. 3: A combination of expanded metal lath and ribs where the rib has a total depth of $\frac{3}{4}$ inch. (See Pages 32 to 45.)

NETMESH METAL LATH: This term is used to indicate a metal lath, slit and expanded from sheet metal into such form that there will be no rib in the lath. (See Pages 10 and 11.)

NETMESH CORRUGATED—SELF-FURRING LATH: An expanded Diamond Mesh Lath, in which corrugations are formed about $\frac{3}{8}$ " high, thus providing furring strips in the lath so that the great body of the lath is held about $\frac{3}{8}$ " away from its bearings. (See Page 12.)

Always specify grade of Metal Lath demanded; whether Steel (Painted or Galv.); ARMCO Ingot Iron (Painted Black or Galv.); Coppered Metal (Painted Black); Pure Zinc; or Pure Copper.

ATTACHED CEILING: A ceiling which is clipped directly to or suspended less than 6 inches below the construction above.

SUSPENDED CEILING: A ceiling which is suspended more than 6 inches below the construction above.

HANGER: The vertical member of a suspended ceiling which carries the steel framework.

RUNNER CHANNEL: The heavier horizontal member of a suspended ceiling.

FURRING CHANNEL: The smaller horizontal member of a suspended ceiling—the member to which the lath is attached.

APPROVED SPECIFICATIONS:

No. 1 Milcor Metal Lath on Wood Stud and Joist Construction

1. WEIGHTS OF MILCOR METAL LATH.

a. For partitions:

Milcor Netmesh Metal Lath, for studs with a maximum spacing of 16 inches on centers, shall weigh not less than 2.50 pounds per square yard.

Note: Expanded Metal Lath weighing 2.2 pounds per square yard is regularly manufactured and available for use in partitions where Underwriter's Standards are not exacted; it is also suitable for corner reinforcements (Corner Lath).

Milcor $\frac{3}{8}$ Stay-Rib Lath No. 2, for studs with a maximum spacing of $19\frac{1}{2}$ inches and 24 inches on centers, shall weigh not less than 2.75 pounds and 3 pounds per square yard, respectively.

Milcor Stay-Rib Lath No. 1 for studs with a maximum spacing of $19\frac{1}{2}$ inches on centers, shall weigh not less than 2.75 pounds per square yard.

b. For Ceilings:

Milcor Netmesh Metal Lath, for joists with a maximum spacing of 16 inches on centers, shall weigh not less than 3 pounds per square yard.

Milcor $\frac{3}{8}$ Stay-Rib Lath No. 2, for joists with a maximum spacing of $19\frac{1}{2}$ inches and 24 inches on centers, shall weigh not less than 2.75 and 3.40 pounds per square yard, respectively.

Milcor Stay-Rib Lath No. 1 for joists with a maximum spacing of $19\frac{1}{2}$ inches on centers, shall weigh not less than 2.75 pounds per square yard.

2. SIZE, WEIGHTS AND SPACING OF NAILS, STAPLES AND TIE WIRE.

a. Attachments for Metal Lath:

Milcor Metal Lath shall be attached to wood studs and joists by nails not less than 6d or by $1\frac{1}{4}$ -inch No. 14 gauge wire staples driven to a penetration of not less than $\frac{7}{8}$ inch and spaced not to exceed 6 inches on center; provided, further, that $\frac{3}{4}$ inch No. 14 gauge wire staples may be used in lieu of $1\frac{1}{4}$ -inch staples when Underwriters' Standards are not exacted. An ideal fastener for NETMESH and No. 1 STAY-RIB Metal Lath on wood, is a No. 12, $\frac{5}{8}$ inch Flat Head Barbed Roofing Nail, 1 inch long. (See illustration on page 31.)

b. Tie Wire shall be not less than No. 18 gauge galvanized, soft annealed.

3. ERECTION OF MILCOR METAL LATH.

a. All Milcor Metal Lath shall be erected with the long dimensions of sheets across the supports; Stay-Rib Lath with the ribs against the supports.

b. Milcor Lath shall be applied first to the ceilings and the sheets shall be carried down 6 inches on to the walls and partitions. If metal lath is not used on the ceilings, the lathing may start at the top of the wall and be bent and carried up 6 inches on to the ceiling joists so that no cracks occur at junction of ceiling and walls; and on walls, all lath shall be

started one stud away from corner and be bent into the corner and carried on to the abutting wall so as to avoid a joint at juncture of walls; provided, however, that where $\frac{3}{8}$ Stay-Rib Lath No. 2 is used on ceilings or walls, it shall be butted into all joints and strips of flat lath not less than 12 inches wide shall be bent into the shape of an "L," 6 inches on each side, and be securely wired along each edge in all corners. These strips—or preferably, Milcor Expansion Corner Bead—shall not be fastened at the corner, but only along the two outer edges.

c. Milcor Lath shall be placed so that the lower sheet laps over the upper—not vice versa—and shall be securely attached to the supports. Nails or staples shall be so placed that a nail or staple occurs where

sides of sheets lap at supports. On walls, clinch of nails shall be upward, not downward.

d. Milcor Netmesh Metal Lath shall be lapped at sides not less than $\frac{1}{2}$ inch, and at ends not less than 1 inch. End laps shall occur only over supports.

e. Milcor Stay-Rib Lath shall be lapped at sides by nesting outside ribs, and at ends, 1 inch.

NOTE: Corner Reinforcement:

Wherever wood lath—or plaster board—is used, Milcor Expansion Corner Bead shall be applied in all vertical corners and into corners between ceilings and partitions and lightly attached over the wood lath or plaster board, to reinforce the plaster and prevent corner cracks. See pages 2, 62 to 67.

NOTE: See also page 95 for Milcor Metal Lath Alternate Specifications for limited expenditures.

No. 2 Back-Plastered Milcor Metal Lath Stucco Construction

1. WEIGHTS OF MILCOR METAL LATH.

Milcor Corrugated Netmesh Expanded Metal Lath, self-furring, or $\frac{3}{8}$ Stay-Rib Lath No. 2, for studs spaced not greater than 16 inches on centers, shall weigh not less than 3.4 pounds per square yard.

2. FURRING STRIPS.

Furring strips, if used, shall be Milcor Crimped Furring, not less than 1 inch wide and not less than No. 22 gauge.

3. SIZES AND WEIGHTS OF NAILS, STAPLES AND TIE WIRE.

a. Milcor Metal Lath shall be attached to supports by not less than 6d nails or $1\frac{1}{4}$ -inch No. 14 gauge galvanized wire staples driven to a penetration of not less than $\frac{7}{8}$ inch. Attachments used for Netmesh Metal Lath shall be spaced not to exceed 6 inches on center and when used for $\frac{3}{8}$ Stay-Rib Lath No. 2 shall occur at each rib.

b. Tie wire shall be not less than No. 18 gauge galvanized, soft annealed.

4. SIZE, SPACING AND FRAMING OF WOOD EXTERIOR.

a. Studs:

Studs shall be not less than 2 by 4 inches, spaced not to exceed 16 inches on centers, and shall rest on a plate bolted to masonry not less than 9 inches above finished grade.

b. Horizontal Bracing:

Studs shall be braced midway between story heights with horizontal bridging not less than 2 inches in thickness, set back or tilted to permit back-plastering.

c. Diagonal Bracing:

Wood studding shall be braced at each corner of building at each floor and wherever else required for good construction, by braces not less than 1 by 4 inches, the slope or angle of which shall be such that each brace shall tie together not less than the upper or lower half of the three studs adjacent to the corners or other places requiring bracing, at floor or ceiling levels. Such braces shall be cut into and nailed to each stud with not less than two 10d nails; or an alternate form of diagonal bracing consisting of 2-inch material cut between and nailed to the studs in the positions described shall be used.

d. Other Bracing, Etc.:

Wall studs shall be tied together at floors and ceilings by grits or plates cut into or otherwise secured

to each stud at such points. Studs shall be doubled around openings and openings 4 feet wide or more shall be trussed over.

5. INSULATION.

Not less than one layer of building paper, quilting, felt, or other form of insulation shall be imposed as insulation between the interior and exterior face of studs.

6. FIRESTOPPING.

The space between the studs at their juncture with the floor and ceiling joists shall be properly fire-stopped. Firestops shall consist of Milcor Netmesh Metal Lath, basket-shaped, to fit between studs, coated with plaster or cement and filled with incombustible materials to 3 inches above floor level.

7. FLASHING.

Milcor No. 7 Expansion Flashing shall be used at water tables, over all door and window openings, wherever projecting wood trim occurs, and at all horizontal courses and elsewhere, wherever water might remain on or get behind stucco. (Refer to page 72.)

8. STUCCO MATERIALS.

Stucco shall be of approved materials and shall be at least two coats—not including back-plastering—and have a thickness not less than $\frac{7}{8}$ inch over outside face of lath, and a total thickness of not less than 2 inches, including back-plastering.

9. ERECTION OF MILCOR METAL LATH.

a. Milcor Metal Lath shall not be applied until all exterior framing is completed and flashing nailed in place.

b. All lath shall be erected with the long dimension of sheet across supports; Stay-Rib or Corrugated Netmesh Self-Furring Lath with the ribs against supports.

c. Application of sheets of Milcor lath shall commence at the top right corner of building, one stud away from corner, bending sheets around the angle and carrying them on to the abutting wall, so that no joints shall occur at corners; provided, however, that where Corrugated Netmesh Self-Furring or $\frac{3}{8}$ Stay-Rib Lath No. 2 is used, it shall be started at the corner and strips of flat lath not less than 12 inches wide shall be bent around the angle, not less than 6 inches on each wall, and shall be securely wired along each edge to the Stay-Rib or Corrugated Netmesh Self-

Furring Lath. These strips shall not be fastened at the corner, but only along the two outer edges. Milcor Expansion Corner Bead cut from pure Zinc or Copper is especially recommended on stucco corners. (Refer to pages 62, 63 and 8.)

d. Lath shall be placed so that the lower sheet laps over the upper—not vice versa—and shall be securely attached to the supports. Nails or staples shall be so placed that a nail or staple occurs where sides of sheets lap at supports. On walls, clinch of nails shall be upward, not downward.

e. If Flat Netmesh Expanded Metal Lath—not Corrugated—is used, crimped furring may be nailed at the same time as lath; the nails or staples shall be bent over or straddle the furring strips.

f. Netmesh Expanded Metal Lath shall be lapped at sides not less than $\frac{1}{2}$ inch, and at ends not less than 1 inch. Stay-Rib lath shall be lapped at sides by nesting outside ribs, and at ends, 1 inch. End laps shall occur only over supports.

g. Side laps shall be tied at least once between supports with No. 18 gauge galvanized annealed wire.

h. Where required, Netmesh Metal Lath baskets for firestops shall be constructed before applying stucco.

10. APPLICATION OF STUCCO.

a. Scratch coat shall first be applied to exterior face of lath, and shall average at least $\frac{1}{4}$ inch in thickness over face of lath to provide proper support for succeeding coats. After it has set, the back-plastered coat shall be applied, working the mortar well between the lath and face of stud, and thoroughly embedding back face of lath by not less than $\frac{5}{8}$ -inch of stucco plaster.

b. Where two-coat stucco is used, second or finish coat shall be applied on exterior face of wall directly on scratch coat. Where three-coat stucco is used, a brown or straightening coat shall first be applied over scratch coat and shall be well scratched to receive finishing coat. Total thickness of stucco shall not be less than specified in paragraph 8 preceding.

c. Portland cement stucco shall not be applied in freezing weather except when suitably protected from freezing. Other stuccoes shall be applied only in accordance with recommendations of manufacturers thereof.

11. APPLICATION OF INSULATION.

Before lathing interior face of studs, insulation as specified in paragraph 5 above, shall be applied between or over interior face of studs, so as to provide an air space between it and the back side of interior plaster.

No. 3—Stucco on Milcor Metal Lath over Sheathing

Use Specifications No. 2, Back-Plastered Metal Lath Stucco Construction, excepting where modified hereunder.

1. WEIGHTS OF MILCOR METAL LATH.—Same as Specifications No. 2.
2. FURRING STRIPS. — Same as Specifications No. 2.
3. SIZE AND WEIGHTS OF NAILS, STAPLES AND TIE WIRE.—Same as Specifications No. 2.
4. SIZE, SPACING AND FRAMING OF WOOD EXTERIOR.

a. Studs.—Same as specifications No. 2—Back-Plastered Construction.

b. Horizontal Bracing:

Studs shall be braced midway between story heights with horizontal bridging of the same size as the studs.

c. Diagonal Bracing.—Same as Specifications 2.

d. Other Bracing.—Same as Specifications No. 2.

e. Sheathing:

Sheathing shall be not less than $\frac{7}{8}$ inch nominal thickness, not less than 6 inches nor more than 8 inches wide, and shall be laid horizontally with two 10d nails driven into each stud.—Diagonal sheathing is not recommended.

5. INSULATION.

A substantial water-proofed building paper, quilting, felt or other water-proof form of insulation shall be laid horizontally over the sheathing, commencing at the bottom. The bottom strip shall lap over the baseboard at the bottom of the wall, and upper strips shall lap over lower strips—not vice versa—and lap shall be not less than 2 inches. Insulations shall lap flashings at all openings.

6. FIRESTOPPING.—Same as Specifications No. 2.

7. FLASHING.—Same as Specifications No. 2.

8. STUCCO MATERIALS.

Stucco shall be of approved materials and shall be at least two-coat work and have a thickness of not less than $\frac{7}{8}$ inch over outside face of lath.

9. ERECTION OF MILCOR METAL LATH.

a. Milcor Metal Lath shall not be applied until all exterior framing is completed and flashing and insulation nailed in place.

b, c, d.—Same as Specifications No. 2.

e. If Flat Netmesh Expanded Metal Lath—not Corrugated—is used, crimped furring is nailed at the same time as lath, the strips being applied vertically on about 12-inch centers directly over insulation and nailed or stapled every 12 inches; the nails or staples shall be bent over or shall straddle the furring strips.

f. g.—Same as Specifications No. 2.

h. Omit.

10. APPLICATION OF STUCCO.

a. Scratch coat shall be of such consistency and so manipulated as to thoroughly imbed back side of Milcor metal lath, shall average at least $\frac{1}{4}$ inch in thickness over face of lath and shall be well scratched to provide a bond for the succeeding coat.

b. Same as Specifications No. 2.

c. Same as Specifications No. 2.

11. CONSTRUCTION OF FIRESTOPPING.

Before lathing interior face of studs, construct Netmesh metal lath baskets for firestops to completely fill openings at position specified in paragraph 6, preceding coat with plaster or cement and fill with incombustible materials to 3 inches above floor level. Refer to page 8.

No. 4—Overcoating Stucco on Milcor Metal Lath

Use Specifications No. 3, Stucco on Milcor Metal Lath Over Sheathing excepting where modified hereunder.

1. Same as Specifications No. 3, Stucco over Sheathing.
2. Same as Specifications No. 3, Stucco over Sheathing.
3. Same as Specifications No. 3, Stucco over Sheathing.
4. RECONSTRUCTION OF OLD SIDING, ETC.
a. Renailing of Loose Siding, Shingles, etc.:

Where lap or beveled siding or shingles have been used for the wall covering, they shall be examined as to their present condition. If in good condition they may be left in place, but any loose siding or shingles shall be renailed and, if defective, shall be replaced, after which the procedure shall be as specified in article *b* below.

Removal of Siding Shingles, if in Poor Condition:

If siding or shingles are in generally poor condition, they shall be removed entirely and a substantial

water-proofed building paper or membrane shall be applied over the sheathing, after which "Specification No. 3 for Stucco on Milcor Metal Lath Over Sheathing" shall be followed.

b. Extension of Door and Window Trim and Placing of Flashing:

After the old lap or bevel siding, or shingles, have been securely nailed to the sheathing, all door and window trim shall be extended so that it will have the proper projection beyond the finish face of the overcoating.

5. (Same as Specifications No. 3, except add "old siding or shingles" in front of word "sheathing".)
6. Omit
7. Same as stucco over sheathing.
8. Same as stucco over sheathing.
10. Same
11. Omit.

No. 5—Milcor Steel-Channel Stud Partitions (Solid or Hollow) for Firesafe Structures

1. WEIGHTS OF MILCOR METAL LATH.

a. Netmesh Expanded Metal Lath, for studs with a maximum spacing of 12 inches on center, shall weigh not less than 2.20 pounds per square yard and for studs with a maximum spacing of 16 inches on center shall weigh not less than 2.5 pounds per square yard.

b. $\frac{3}{8}$ Stay-Rib Lath No. 2, for studs with a maximum spacing of 19½, 24, 30 and 36 inches on centers, shall weigh not less than 2.75, 3.00, 3.40, and 4 pounds per square yard.

c. Stay-Rib Lath No. 1, for studs with a maximum spacing of 19½ inches on center, shall weigh not less than 2.75 pounds per square yard.

2. SIZE AND WEIGHT OF STUDS.

a. Studs for Solid Partitions shall be $\frac{3}{4}$ -inch Milcor Cold Rolled or Cubro ($\frac{5}{8}$ -inch) Channels weighing not less than 276 and 270 pounds per thousand lineal feet, respectively. (See illustrations page 14.)

b. Studs for Hollow Partitions shall be either a single row of Milcor Cold Rolled Channels of the width desired for the finished partition, or a double row of not less than $\frac{3}{4}$ -inch Milcor or Cubro ($\frac{5}{8}$ -inch) Channels weighing not less than 276 and 270 pounds per thousand lineal feet, respectively.

3. SIZE AND WEIGHT OF RUNNER CHANNELS.

Floor and Ceiling Runner Channels for both solid and hollow partitions, if used, shall be of proper size to hold the upright channel. See illustrations pages 15 and 16.

4. SPACERS, BRACES, TIE WIRE.

a. Spacers or Braces for hollow partitions shall be of substantial design and shall be spaced approximately 3 feet on centers.

b. Tie wire shall be not less than No. 18 gauge galvanized soft annealed.

5. ERECTION OF STUDDING.

a. When floor and ceiling runners are used, they shall be securely bolted or clamped to the floor beams,

soffits of concrete or terra cotta arches and shall be secured substantially to top of concrete or tile floors. Hollow partitions shall have parallel lines of such floor and ceiling runners.

b. Studs shall be secured in position by bolting to floor and ceiling runners or by bending a shoe at the end of studs and wiring, nailing, or bolting to plates, or by inserting ends of studs in holes drilled in top of concrete or other masonry floors or punched in soffits of masonry ceilings, or by bending a shoe at ends of studs and anchoring to holes drilled in floors and ceilings, or, where Milcor metal lath ceilings are used, a small hole shall be made in the ceiling lath and the end of the Milcor Channel allowed to project through it and be wired to a runner channel attached to the ceiling lath.

c. Milcor Channels of a length shorter than the total height of the partition are permissible, but when pieced out with short lengths the splicing shall be made by lapping not less than 8 inches, with the flanges interlocked and securely wired together.

d. For hollow partitions the double studding shall be spaced to proper distance with spacers not over 3 feet centers.

6. ERECTION OF THE METAL LATH.

a. Milcor Metal Lath shall be applied to only one side of the channels, with the long dimension of sheet across the studs; ends of sheets shall be staggered one above another. Lathing shall commence at the top of the partitions and shall be carried down with the edge of the lower sheet lapping over the upper—not vice versa. If metal lath is not used on the ceiling, the lathing may be started at the top of the wall and be bent and carried up 6 inches on to the ceiling so that no joints occur at juncture of ceiling and walls; and on walls all lath shall be started one stud away from corner and be bent into the angle and carried on to the abutting wall so as to avoid a joint at juncture of walls; provided, however, that where $\frac{3}{8}$ Stay-Rib Lath No. 2 is used on partitions, it shall be butted

into all joints, and strips of Netmesh lath not less than 12 inches wide, shall be bent into the shape of an "L," not less than 6 inches on each side, and be securely wired along each edge in all corners. These strips shall not be fastened at the corner, but only along the two outer edges. Milcor Expansion Corner Bead is especially recommended for all corners. See pages 62 to 67 and 8.

b. Sheets shall be wired to studs at intervals not exceeding 6 inches, and a tie shall occur where sides of sheets lap at channels. There shall be one tie on side laps half way between channels.

c. Netmesh Expanded Metal Lath shall be lapped at sides not less than $\frac{1}{2}$ inch and at ends not less than

1 inch. End laps of sheets should generally occur only over studs; if between studs, sheets shall be securely laced with No. 18 gauge galvanized annealed wire.

d. Stay-Rib Lath shall be lapped at sides by nesting outside ribs, and at ends, 1 inch. End laps shall be as in preceding paragraph.

e. NOTE: Solid partitions over 6 feet high shall be temporarily braced horizontally on the channel side at intervals not exceeding 6 feet vertically, before applying plaster. Such bracing shall not be removed until scratch coat on the lath side of the partition has set.

No. 6—Milcor Steel Channel Stud Partitions (For Structures with Wood Floors and Wood Joists)

In buildings with wood floors or with wood floor joists, solid or hollow channel stud partitions shall be constructed in precisely the same manner as in buildings with incombustible floors or ceilings—see Specification No. 5—except that when floor and ceiling runners are used they shall be spiked directly to the wood floor or the ceiling joists; provided, also, that alternate methods of securing the channels to the wood floors described as follows shall be permissible.

Channels may be secured to wood floors or to wood

ceiling joists by driving two nails into the wood, one on either side of the web of the channel, leaving 1 inch of the nails undriven; or the end of the channel may be bent into a shoe and a nail driven through a hole punched in the shoe, into the floor or ceiling; or the channels may be set in shoes secured to the floor. For wood joist ceilings, if the joists are not in the proper location, short pieces of wood shall be cut in between them and the channels shall be either wired or nailed to such short pieces of wood.

No. 7—Milcor Wall Furring

1. WEIGHTS OF MILCOR METAL LATH.

a. Netmesh Expanded Metal Lath, for vertical furring channels with a maximum spacing of 12 inches and 16 inches on centers, shall weigh not less than 2.20 pounds and 2.5 pounds per square yard, respectively.

b. $\frac{3}{8}$ Stay-Rib Lath No. 2, for vertical furring channels with a maximum spacing of 19 $\frac{1}{2}$, 24, 30 and 36 inches on centers, shall weigh not less than 2.75, 3.00, 3.40 and 4 pounds per square yard.

c. Stay-Rib Lath No. 1 for vertical furring channels with a maximum spacing of 19 $\frac{1}{2}$ inches on centers shall weigh not less than 2.75 pounds per square yard.

2. HORIZONTAL FURRING CHANNELS.

a. Minimum Size and Weight:

Milcor Horizontal Furring Channels shall be not less than $\frac{3}{4}$ -inch Milcor or Cubro ($\frac{5}{8}$ -inch) Cold Rolled Channels, weighing not less than 276 and 270 pounds per thousand lineal feet, respectively.

b. Spacing.

Milcor Horizontal Furring Channel shall be spaced not to exceed 4 feet 6 inches on centers.

3. VERTICAL FURRING CHANNELS.

a. Minimum Size and Weight:

Milcor Vertical Furring Channels shall be not less than $\frac{3}{4}$ -inch Milcor or Cubro ($\frac{5}{8}$ -inch) Cold Rolled Channels, weighing not less than 276 and 270 pounds per thousand lineal feet, respectively. (See

illustrations of Cubro Channels on page 14.)

b. Spacing.

Milcor Vertical Furring Channels shall be spaced in accordance with the weight of the lath used, and shall not exceed 12-inch centers for 2.20 pound Netmesh Expanded Metal Lath, 16-inch centers for 2.5 pound Netmesh Expanded Metal Lath, not to exceed 19 $\frac{1}{2}$, 24, 30 and 36 inches for $\frac{3}{8}$ Stay-Rib Lath No. 2 weighing not less than 2.75, 3, 3.5 and 4 pounds per square yard, and not greater than 19 $\frac{1}{2}$ inches for Stay-Rib Lath No. 1.

4. TIE WIRE.

Tie Wire shall be not less than No. 18 gauge galvanized soft annealed.

5. ERECTION OF FURRING CHANNELS.

a. Milcor Horizontal Furring Channels shall be erected against the masonry walls and shall be laid flat with a nail dropped between channel and wall to separate same to permit wiring, and channels shall be secured to wall with 1 $\frac{1}{2}$ -inch cut stub nails.

b. Milcor Vertical Furring Channels shall be securely wired to horizontal Furring Channels by not less than three loops of No. 18 gauge galvanized annealed wire at each crossing.

6. ERECTION OF MILCOR METAL LATH.

Same as Article 6 of Specifications No. 5—Metal Stud Partitions.

No. 8—Milcor Standing Furring

Milcor Standing Furring shall have the same spacing of studs and same weight of lath as used for

solid Metal Stud Partitions. Specifications No. 5.

No. 9—Milcor Attached Ceilings Clipped to Steel Floor Beams *Or Suspended Less than 6 inches Below Terra Cotta Floors*

NOTE: This specification can be adapted for use with attached ceilings under concrete joists and floors, other specifications for which are given in Specifications No. 10.

NOTE: USE SPECIFICATION FOR SUSPENDED CEILINGS OR THE FOLLOWING:

1. SIZE AND WEIGHT OF FURRING CHANNELS AND HANGERS.

a. Where ceilings are attached to the floor beams or just under terra cotta floors, $\frac{3}{4}$ -inch Milcor or Cubro ($\frac{5}{8}$ -inch) Cold Rolled Furring Channels weighing not less than 276 and 270 pounds per thousand lineal feet, respectively, shall be securely wired or clamped to the lower flanges of the beams or to hangers of not less than No. 9 gauge galvanized wire, spaced not to exceed 2 feet centers along the channels. Transverse spacing of clamps, hangers, or other attaching devices shall correspond to that of channels as specified in Article 2 below.

2. WEIGHTS OF MILCOR METAL LATH.

Netmesh Expanded Metal Lath, for Furring Channels with a maximum spacing of 12 and 16 inches on centers, shall weigh not less than 3 pounds and 3.4 pounds per square yard, respectively. $\frac{3}{8}$ Stay-Rib Lath No. 2 for furring channels with a maximum spacing of 19 $\frac{1}{2}$, 24, and 30 inches on centers, shall weigh not less than 3, 3.40, and 4 pounds per square yard, respectively. Stay-Rib Lath No. 1 for furring channels with a maximum spacing of 16-inch centers shall weigh not less than 2.75 pounds per square yard.

3. TIE WIRE.

Tie Wire shall be not less than No. 18 gauge galvanized soft annealed.

4. ERECTION OF MILCOR FURRING CHANNELS.

Special clips are obtainable for clipping Milcor furring channels to steel beams. For terra cotta arches a hole shall be punched through the tile, the hanger inserted and held in place with a cross piece of steel rod, toggle bolt or other suitable anchor. The lower ends shall be twisted around or otherwise secured to the furring channels, which are thus brought into the proper height and position.

5. ERECTION OF MILCOR METAL LATH.

a. Milcor Metal Lath shall be applied with the long dimension of the sheet across the furring channels.

b. Sheets shall be wired to furring channels at intervals not exceeding 6 inches and a tie shall always occur where sides of sheets lap at channels. There shall be one tie on side laps half way between channels.

c. Netmesh Expanded Metal Lath shall be lapped at sides not less than $\frac{1}{2}$ inch, and at ends not less than 1 inch. End laps of sheets should generally occur only over furring channels; if between studs, sheets shall be securely laced with No. 18 gauge galvanized annealed wire.

d. Stay-Rib Lath shall be lapped at sides by nesting outside ribs, and at ends, 1 inch. End laps shall be as in preceding paragraph.

No. 10—Milcor Attached Ceilings Under Concrete Joists and Floors *Constructed with Milcor Steel Domes*

NOTE: Construction outlined in Specifications No. 9 preceding, may also be adapted for attached

ceilings under concrete joists and floors.

General and Erection

1. SIZE, SPACING AND ERECTION OF HANGERS—METHOD A.

a. Where ceiling is to be applied directly against the bottom of concrete joists, or suspended to a distance not exceeding 6 inches below the joists, hangers of not less than No. 9 gauge galvanized annealed wire shall be placed in the slab or beam before pouring concrete. A loop or other deformation shall be provided in each hanger to positively engage the concrete.

b. Hangers shall be spaced not to exceed 3 feet in direction parallel to the joists and not further apart in the transverse direction than the center to center distance of the joists, which shall in no case be more than 26 inches.

2. SIZE, WEIGHT, SPACING AND ERECTION OF FURRING CHANNELS AND RODS — WEIGHTS OF MILCOR METAL LATH — METHOD A.

a. $\frac{3}{4}$ -inch Milcor Cold Rolled Channels or Cubro ($\frac{5}{8}$ -inch) Channels, weighing 276 and 270 pounds, per thousand lineal feet, respectively, shall be attached to the hangers parallel to the joists. Such channels shall be spaced not to exceed the center to center distance of the concrete joists.

b. Pencil Rods not less than $\frac{1}{4}$ inch in diameter shall be attached transversely to the furring channels by not less than three loops of No. 18 gauge galvanized annealed wire.

c. Pencil Rods shall be spaced not to exceed 11 $\frac{3}{4}$ -inch centers for 3 pound Netmesh Expanded Metal Lath or 15 $\frac{3}{4}$ -inch centers for 3.4 pound Expanded Metal Lath, or 16-inch centers for Stay-Rib Lath No. 1 or $\frac{3}{8}$ Stay-Rib Lath No. 2 weighing not less than 2.75 pounds per square yard. Where $\frac{3}{8}$ Stay-Rib Lath No. 2 weighing not less than 3 pounds per square yard is used, the Pencil Rods may be omitted.

3. SIZE, SPACING AND ERECTION OF HANGERS AND PENCIL RODS—WEIGHTS OF MILCOR METAL LATH—METHOD B.

a. In lieu of attachment to channel, Pencil Rods not less than $\frac{1}{4}$ inch in diameter shall be attached directly to wire hangers cast into the concrete joists. Pencil Rods shall be placed at right angles to the joists.

b. Hangers shall be not less than No. 14 gauge galvanized annealed wire and shall be spaced not to exceed 11 $\frac{3}{4}$ -inch centers for 3 pound Netmesh Expanded Metal Lath, 15 $\frac{3}{4}$ -inch centers for 3.4 pound Netmesh Expanded Metal Lath, or 16-inch centers for 2.75 pound Stay-Rib No. 1 or $\frac{3}{8}$ Stay-Rib Lath No. 2.

c. Where $\frac{3}{8}$ Stay-Rib No. 2 is used, the Pencil Rods may be omitted, but the ribs of the lath shall be placed at right angles to the joists.

4. ERECTION OF MILCOR METAL LATH — METHODS A AND B.

a. Milcor Metal Lath shall be applied with the long dimension of the sheet across the rods.

b. Sheets shall be wired to rods with No. 18 gauge galvanized annealed wire at intervals not exceeding 6 inches and a tie shall always occur where

sides of sheets lap at rods. There shall be one tie on side laps half way between rods.

c. Netmesh Expanded Metal Lath shall be lapped at sides not less than $\frac{1}{2}$ inch, and at ends not less than 1 inch. End laps of sheets should generally occur only over rods; if between rods, sheets shall be securely laced with No. 18 gauge galvanized annealed wire.

d. Stay-Rib Lath shall be lapped at sides by nesting outside ribs, and at ends, 1 inch. End laps shall be as in preceding paragraph.

No. 11—Milcor Ceilings Directly Under Concrete Joists and Floors *Lath Placed on Forms Before Pouring Concrete*

Methods of attachment and sizes and weights of the component parts of this form of construction shall be in accordance with our specifications on Milcor

Steel Domes. See Specifications No. 18 on page 95. Also see pages 46 to 61.

No. 12—Milcor Suspended Ceilings

Suspended below the soffit of steel or concrete beams or purlins, or concrete or hollow tile floor arches.

1. HANGERS.

a. Minimum Size.

The minimum size for hangers shall be No. 8 galvanized wire, or 1 inch x $\frac{1}{8}$ inch flat steel, or 7/32 inch round mild-steel rods.

b. Spacing.

Hangers shall be spaced not to exceed 4 feet center to center in both directions, excepting that hangers shall be spaced not to exceed 2 feet on centers along runner channels when $\frac{3}{4}$ -inch Milcor or Cubro ($\frac{5}{8}$ -inch) runner channels weighing not less than 276 and 270 pounds per thousand lineal feet, respectively, are used, as in Article 2a below.

2. RUNNER CHANNELS.

a. Minimum Size and Weight.

Runner Channels shall be not less than $1\frac{1}{2}$ -inch Milcor Cold Rolled Channels weighing not less than 456 pounds per thousand lineal feet, excepting when hangers are spaced not to exceed 2 feet on centers along runner channels, in which case $\frac{3}{4}$ -inch Milcor or Cubro ($\frac{5}{8}$ -inch) Runner Channels weighing not less than 276 and 270 pounds per thousand lineal feet, respectively, may be used; provided, however, that this construction is permissible only when ceiling is suspended less than 6 inches below beams, joists, etc.

b. Spacing.

Milcor Runner Channels shall be spaced not to exceed 4 feet on centers.

3. FURRING CHANNELS.

a. Minimum Size and Weight.

Furring Channels shall be $\frac{3}{4}$ -inch Milcor or Cubro ($\frac{5}{8}$ -inch) Cold Rolled Channels weighing not less than 276 and 270 pounds per thousand lineal feet respectively.

b. Spacing.

Milcor Furring Channels shall be spaced in accordance with the weight of lath used, and shall not exceed 12-inch and 16-inch centers for 3 pound and 3.4 pound Netmesh Expanded Metal Lath, respectively, nor exceed 16-inch centers for 2.75 pound Stay-Rib No. 1 or $\frac{3}{8}$ Stay-Rib Lath No. 2, or 24-inch and 30-inch centers for 3.40 and 4 pound $\frac{3}{8}$ Stay-Rib Lath, respectively.

4. WEIGHTS OF MILCOR METAL LATH.

Milcor Metal Lath used for suspended ceilings shall have a weight of not less than 2.75 pounds per

square yard; provided, however, that minimum weights shall in each case be governed by spacing of Milcor furring channels as specified in Article 3b, preceding.

5. TIE WIRE.

Tie Wire for attaching Milcor Metal Lath to Milcor Channels shall be not less than No. 18 gauge galvanized annealed wire.

Tie Wire used for securing furring channels to runner channels shall be not less than No. 16 gauge galvanized annealed wire.

6. ERECTION OF CHANNEL FRAME.

a. Attachment of Hangers to Beams, Purlins and Floors:

Upper ends of hangers of wire, rods or flats shall be of sufficient length to wrap around beams or provide a suitable anchorage in the concrete or tile. Where steel beams or purlins are not more than 4 feet center to center, hangers may be attached directly to them. When hangers are hung from concrete beams or arches, the hangers shall be placed before concrete is poured. When ceilings are hung from terra cotta floors, hangers shall be installed after the tile is in place. A hole shall be bored in the underside of the tile and the hanger inserted and securely anchored with either a cross piece of steel rod or toggle bolt, or the hanger may extend clear through the tile and be secured on the upper side by means of a steel rod or toggle bolt.

b. Attachment of Runner Channels to Hangers:

Lower end of each wire hanger shall be of sufficient length to wrap around the runner channels and be given three twists around itself. Lower end of each rod hanger shall be of sufficient length to wrap around the runner channel with two twists, or to be securely wired to same. Lower ends of flat steel hangers shall have holes punched at the proper distance, to which the runner channel shall be bolted with not less than $\frac{3}{8}$ -inch diameter bolts.

Milcor Runner Channels shall be firmly secured to the hangers as described, same spacing as in Article 2 of this section, and shall conform to the contour of the ceiling.

c. Attachment of Furring to Runner Channels:

Furring Channels shall be erected at right angles to the runner channel and be securely wired to same by at least six strands of No. 18 galvanized annealed wire at each crossing, or by No. 9 wire hair pin clips.

7. ERECTION OF MILCOR METAL LATH.

See Specifications No. 9, Article 5 — Attached Ceilings.

No. 13—Milcor Metal Lathed Beams and Cornices

1. WEIGHTS OF MILCOR METAL LATH.

a. Netmesh Expanded Metal Lath, for beams and cornices where brackets are spaced 12 or 16 inches on centers, shall be not less than 2.5 and 3 pounds per square yard, respectively.

2. SIZE, WEIGHT AND SPACING OF BRACKETS.

Brackets shall be formed of $\frac{3}{4}$ -inch Milcor Cold Rolled Channels weighing not less than 276 pounds per thousand lineal feet, or from $\frac{1}{8}$ inch by 1 inch flat steel, and shall be spaced to conform with weight of lath as above.

3. SIZE, WEIGHT AND SPACING OF LONGITUDINAL CHANNELS OR RODS.

Longitudinal Channels or Rods shall be $\frac{3}{4}$ -inch Milcor or Cubro ($\frac{5}{8}$ -inch) Cold Rolled Channels weighing not less than 276 and 270 pounds per thousand lineal feet, respectively, or $\frac{1}{4}$ -inch Pencil Rods; and spacing of same shall be in accordance with dimensions of beam or cornice, but in no case to exceed 12 inches. (See illustrations on page 14.)

4. TIE WIRE.

Wire for tying brackets to structural members shall be not less than No. 18 gauge galvanized annealed wire, using 6 strands. For tying longitudinal rods to brackets, wire shall be not less than No. 16

gauge galvanized annealed wire, and for tying Milcor Metal Lath to rods or channels, wire shall be not less than No. 18 gauge galvanized annealed wire.

5. ERECTION OF BRACKETS, CHANNELS AND RODS.

a. Brackets shall be formed to template in accordance with details furnished by the architect. Brackets shall be securely wired, bolted or clamped to walls, ceilings or structural members, as the case may require, and be spaced as in Article 2 above. For fastening brackets to concrete or masonry beams or walls, holes shall be drilled and plugged; when fastening to terra cotta, toggle bolts or suitable anchor shall be used.

b. Milcor Longitudinal Channels or Rods shall be wired or bolted to brackets.

6. ERECTION OF MILCOR METAL LATH.

a. Milcor Metal Lath shall be applied with the long dimension of the sheet running parallel to the longitudinal channels or rods and shall be bent into and made to conform with the outline of the finished beam or cornice. Side laps shall not occur at the corners, but shall be used at all corners.

b. Side laps on sheets shall be $\frac{1}{2}$ inch and end laps 1 inch. Side laps shall be wired once between channels, and end laps shall be securely laced with No. 18 gauge galvanized annealed wire.

No. 14—Milcor Metal Lathed Columns and Pilasters

1. WEIGHTS OF MILCOR METAL LATH.

a. Netmesh Expanded Metal Lath, where vertical members of framing are spaced not to exceed 12 or 16 inches, shall weigh not less than 2.5 and 3 pounds per square yard, respectively.

b. $\frac{3}{8}$ Stay-Rib No. 2 or Stay-Rib Lath No. 1, where vertical framing members are spaced not to exceed 19 $\frac{1}{2}$, 24 and 30 inches on centers, shall weigh not less than 2.75 and 3.40 pounds per square yard.

2. WEIGHT OF VERTICAL FRAMING MEMBERS.

Vertical framing members shall be $\frac{3}{4}$ -inch Milcor or Cubro ($\frac{5}{8}$ -inch) Cold Rolled Channels weighing not less than 276 and 270 pounds per thousand lineal feet, respectively, and shall be bracketed every 3 feet of their vertical height with similar $\frac{3}{4}$ -inch Milcor or Cubro ($\frac{5}{8}$ -inch) Channels or with $\frac{1}{8}$ inch by 1 inch flat steel. (See illustrations on page 14.)

3. TIE WIRE.

Wire for tying brackets to vertical members shall be not less than No. 18 gauge galvanized annealed wire.

Wire for attaching the lath to the vertical members shall be not less than No. 18 gauge galvanized annealed wire.

4. ERECTION OF BRACKETS AND FRAMING MEMBERS.

a. Hoops or brackets conforming to details furnished by the architect shall be securely attached to steel members with clamps; or by wiring with No. 18 gauge galvanized annealed wire with 6 strands at each tie; or with No. 9 wire hair pin clips, and to masonry or tile by drilling holes and plugging.

b. Vertical framing shall be securely wired or bolted to brackets or hoops with not less than $\frac{3}{8}$ -inch diameter bolts, and shall be securely clamped or wired to structural members at floor and ceiling.

5. ERECTION OF MILCOR METAL LATH.

a. Milcor Netmesh Metal Lath shall be bent to the outline of column or pilaster, long dimension of the sheet at right angles to the vertical framing, and securely wired thereto.

Netmesh Metal Lath shall be bent up on the ceiling or No. 2 Expansion Corner Bead shall be used at the ceiling corners.—See pages 62 to 67 and 8.

b. Sides of sheets shall be lapped 1 inch, or, in the case of Stay-Rib Lath, by nesting outside ribs and be securely laced the full length of the lap with No. 18 galvanized annealed wire. Ends of sheets shall be lapped 1 inch and shall not occur at corners.

No. 15—Milcor Corner and Jamb Reinforcement in Block Partition Construction

1. CORNER REINFORCEMENT.—Refer to pages 62 to 67 and 8.

Wherever gypsum or clay tile partitions abut and where tile partitions or walls join ceilings constructed of tile or concrete, Milcor Expansion Inside Corner Bead No. 2 shall be secured to the tile or concrete before plastering, to reinforce the plaster and prevent corner cracks.

2. JAMB REINFORCEMENT.

Plaster around openings in block partitions shall be reinforced by wide strips of Netmesh Expanded Metal Lath cut from sheets weighing not less than 2.20 pounds per square yard and shall extend beyond the jamb about 12 inches.

See pages 68 to 71 for adaptations of Milcor Expansion Casings.

No. 16—Milcor Metal Lath in Steel Joist Construction

1. WEIGHTS OF MILCOR METAL LATH.

a. Netmesh Expanded Metal Lath used on the upper-floor-side of steel joists—or metal lumber—with a maximum spacing of 16 inches and 12 inches, shall weigh not less than 3.4 pounds and 3 pounds per square yard, respectively.

b. $\frac{3}{8}$ Stay-Rib Lath No. 2 used on the upper-floor-side of steel joists, with a maximum spacing of 24 inches, shall weigh not less than 4 pounds per square yard.

c. Netmesh Expanded Metal Lath for ceilings attached in contact with the lower flanges of steel joists with a maximum spacing of 16 inches and 12 inches shall weigh not less than 3.4 pounds and 3 pounds per square yard, respectively, $\frac{3}{8}$ Stay-Rib Lath No. 2 used for the same purpose, for joists with

a maximum spacing of 19 $\frac{1}{2}$, 24 and 30 inches on centers, shall weigh not less than 3, 3.40 and 4 pounds per square yard. Stay-Rib Lath No. 1 for steel joists with a maximum spacing of 16 inch centers, shall weigh not less than 2.75 pounds per square yard.

2. SUSPENDED CEILING UNDER STEEL JOISTS.

When a Milcor Metal Lath ceiling is suspended under steel joists, it shall conform to the usual Specifications for suspended ceilings. See Specifications No. 12.

3. ATTACHMENTS FOR CEILING LATH.

Milcor Ceiling Lath shall be attached to steel joists at not to exceed 6-inch centers in the manner recommended by the manufacturers of the steel joists.

No. 17—Alternate Milcor Specifications for Dwellings

Plastering specifications for all residences in which wood lath predominates, shall call for Milcor Metal Lath as follows:

1. NETMESH OR STAY-RIB METAL LATH OVER THE HEATING PLANT AND FUEL STORAGE.

That portion of the basement ceiling directly over the heating plant and fuel storage and extending 3 feet beyond the outlines thereof and that portion of

such ceiling over hot air and smoke pipes shall be protected by Milcor Metal Lath and plaster.

2. BATHROOM WAINSCOT.

The entire bathroom wainscot shall be lathed with Stay-Rib or Netmesh Expanded Metal Lath—whether for tile backing or for plaster. Refer to page 9.

In addition to the above, contractors shall submit bids on the following two alternates:

Alternate 1

FURNISH AND INSTALL—

1. Stay-Rib or Netmesh Expanded Metal Lath on the ceilings of the living room, dining room, entry hall, and around and under the stairs and stairwell where exposed to view from the main floor.

2. No. 1 and No. 2 Expansion Corner Bead shall be applied over wood lath in the corners of the living room, dining room and stair hall—to prevent corner cracks—wherever wood lath or any other type of wall construction is used. Refer to pages 62 to 67 and 8.

Alternate 2

In addition to the preceding — FURNISH AND INSTALL—

1. Netmesh Expanded Metal Lath or Stay-Rib Lath for the walls of the living room, dining room and entry hall.

2. Milcor Metal Lath for the balance of the basement ceiling. Refer to page 8.

Weights and Attachments for Milcor Metal Lath

NOTE: Minimum weights of Milcor Metal Lath specified above shall be as follows:

For walls and partitions and cornerite, 2.20 pounds per square yard, and for ceilings, 3 pounds per square

yard for Netmesh Lath; or 2.75 pounds per square yard for Stay-Rib Lath.

Milcor Metal Lath shall be attached to wood studs and wood joists by not less than 6d nails or by equivalent staples.

No. 18—Milcor Steel Dome Floors

The steel forms for forming the rib slabs or joists construction shall be 26 gauge MILCOR Steel Domes manufactured by the Milwaukee Corrugating Co., Milwaukee, Wis. These to be of such height as called for on drawings and to be spaced in accordance with structural details.

The Steel Domes shall be nailed lightly to the centering through the flanges provided in order to prevent displacement while concrete is being poured.

In cases where ceilings are required directly under the concrete joists, Milcor $\frac{3}{8}$ Stay-Rib No. 2, weighing not less than 3.40 lbs. per square yard, painted, or not less than 3.60 lbs. per square yard if cut from galvanized sheets, and manufactured by the Milwaukee Corrugating Co., shall be placed on wood forms before placing the Milcor Steel Domes and shall be securely tied to the reinforcing steel in order to provide permanent attachment.

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